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Southern Medical Journal

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TABLE OF CONTENTS

MEDICINE—Internal Diseases, Pediatrics, Neurology, Diagnostic Methods, Etc.

An Alphabet of Abdominal Diagnosis. Stewart R. Roberts, Atlanta, Ga. 655

Relation of Endothelium to Purpuras Angio-Neurotic Oedemas and Allied Disturbances. E. C. Thrash, Atlanta, Ga. 660

Notes on History Taking. Gordon Wilson, Baltimore, Md. 662

The Present Status of the Wassermann Reaction. L. C. Todd, Charlotte, N. C. 667

Gastro-Intestinal Disturbances Seen on the Western Front. E. R. Gordon, McComb, Miss. 670

AUTHORS' ABSTRACTS: Epidemic Encephalitis with Stupor, Foster Kennedy, New York, N. Y. Acute Adrenal Insufficiency, William Boyd, Winnipeg, Canada. The Diagnostic Value of Lowered Bone Conduction in Syphilis, W. H. Goeckermann, R. A. Barlow and J. H. Stokes, Rochester, Minn. Clinical Significance of Blood Sugar in Nephritis and Other Diseases, First Paper, John R. Williams and Eleanor M. Humphreys, Rochester, N. Y. The Clinical Significance of Blood Sugar in Diabetes Mellitus, Second Paper, John R. Williams and Eleanor M. Humphreys, Rochester, N. Y. Observations on Tolerance and Rate of Utilization of Glucose in a Series of Individuals Exhibiting Various Degrees of Diabetes Mellitus, Third Paper, John R. Williams and Eleanor M. Humphreys, Rochester, N. Y. 672

TROPICAL DISEASES AND PUBLIC HEALTH

Administrative and Educational Phases of the Control of Venereal Diseases. C. A. Abele, Jackson, Miss. 674

AUTHORS' ABSTRACTS: Medical Argument Against Night Work, Especially for Women Employees, Emery R. Hayhurst, Columbus, Ohio. The Importance of Child Hygiene in National Reconstruction, Richard M. Smith, Boston, Mass. The Health Officer and the Enforcement of the Law, Charles V. Craster, Newark, N. J. 677

Concluded on next page

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TABLE OF CONTENTS—Concluded

SURGERY—Railway, Industrial, Gynecological, Obstetrical and Urological

The Diagnosis of Tuberculosis of the Kidney. Daniel N. Eisendrath, Chicago, Ill. 679

The Treatment of Ureteral and Renal Stone. O. S. McCown, Memphis, Tenn. 686

Anomaly of the Kidney. Buford N. Dunavant, Memphis, Tenn. 689

Report of a Case of Uterus Didelphys with Hematocolpos in an Atresic Lateral Vagina. R. A. Bartholomew, Atlanta, Ga. 691

The Early Diagnosis of Biliary Tract Infection. Edwin Schisler, St. Louis, Mo. 694

Changes in the Surgical Treatment of Pleural Empyema Following the Recent Epidemic of Pneumonia. Arthur W. Ralls, Gadsden, Ala. 697

The Treatment of Gunshot Fractures of the Extremities. Robin F. Mason, Memphis, Tenn. 700

Pre-Operative and Post-Operative Treatment. R. M. Harbin, Rome, Ga. 702

Supra-Pubic Prostatectomy. J. A. Graham, Chicago, Ill. 707

AUTHORS' ABSTRACTS: Cervical Sympathectomy as a Means of Permanent Cure of Facial (Trigeminal) Neuralgia, V. Pleth, Pittsburg, Cal. A Review of the Evolution of Thoracic Surgery Within the Past Fourteen Years, Willy Meyer, New York, N. Y. The Influence of Drugs and Chemical Agents Upon the Liver Necrosis of Chloroform Anesthesia, Paper II, N. C. Davis and G. H. Whipple, San Francisco, Cal. Certainty in Sterilization, A. R. Warner, Cleveland, Ohio. Dead Teeth, Josef Novitzky, San Francisco, Cal. 709

EDITORIALS 711

The Asheville Meeting

Food Idiosyncrasies

Fetal Nutrition

What Every Woman Should Know About Cancer

Vegetable Borne Infections

Recognition of Southern Medical Talent

SOUTHERN MEDICAL NEWS 717

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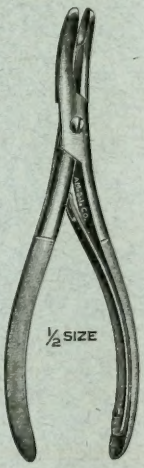

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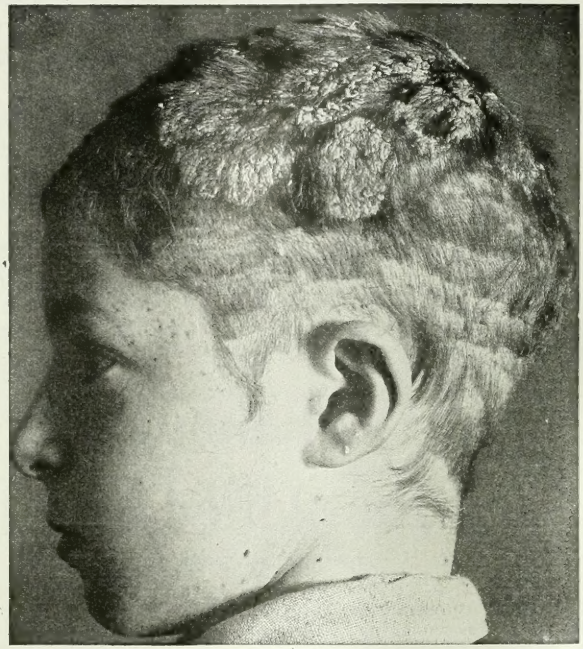

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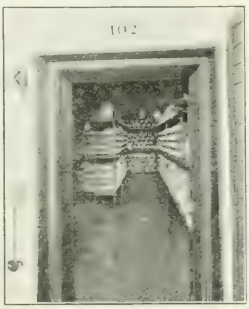

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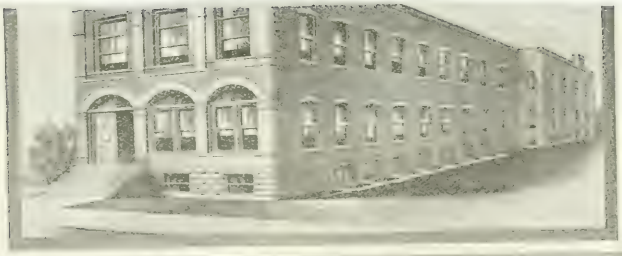

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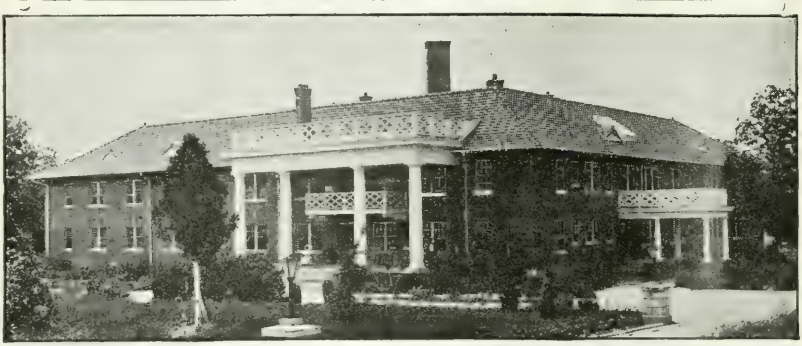

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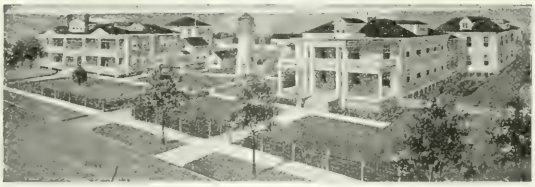

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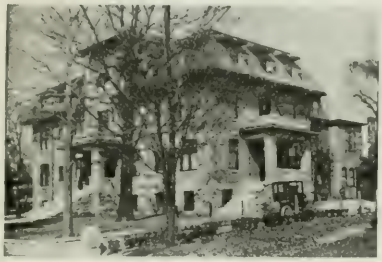

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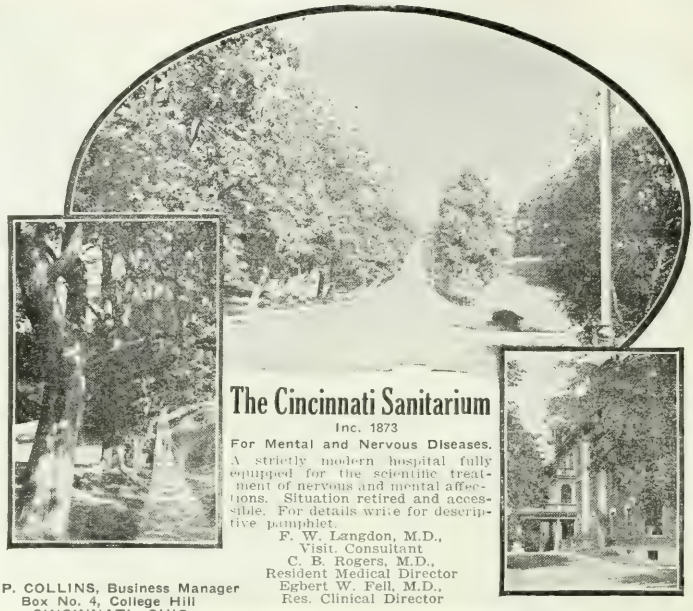

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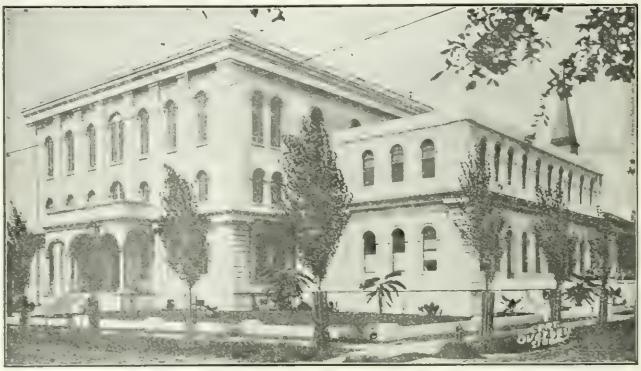

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MEDICINE

INTERNAL DISEASES, PEDIATRICS, NEUROLOGY, DIAGNOSTIC METHODS, ETC.

AN ALPHABET OF ABDOMINAL DIAGNOSIS*

BY STEWART R. ROBERTS, S.M., M.D.,
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Indigestion is a general term, like dyspepsia, that indicates abnormal function or structure, or both, in the digestive tract. Indigestion is really a great symptom name given by the patient to any and every kind of abdominal complaint, the idea being that the food is not properly handled by the alimentary tube. The mind becomes conscious of the abdomen and measures the degree of the discomfort by the comparative terms sensation, ache, pain, agony. The normal abdomen and normal digestion do not attract the attention of the mind, much less cause complaint. On the other hand, abdominal pathology, both of function and structure, may exist without producing even a sensation.

The word abdomen is from *abdo*, I conceal, and abdominal complaints are the key and clue to a concealed pathology and disease somewhere, but not necessarily in the abdomen, much less in the stomach. Probably not one patient in ten of those who complain of stomach trouble has anything the matter with the stomach at all. The analysis of the gastric secretions is an aid to diagnosis, but not a foundation for abdominal pathology. Even an achylia gastrica may be due to a pernicious anemia. The methods of study of disease of the abdomen have improved to such an extent, as illustrated by history-taking, physical examination, fractional chemical and microscopical examination of gastric contents, motor test meal, x-ray, examination of feces and of the rectum, that in eighty per cent. of cases a probable to certain diagnosis can be made, and in twenty per cent. the evidence is sufficient to warrant an exploratory operation. Without a first-class x-ray equipment and an experienced roentgenologist, who subordinates photography — by making it a means and not an end—to clinical interpretation and diagnosis, the proper study of abdominal pathology is impossible. The use of the fluoroscope and ray is a part of the clinical examination, for it is an examination of the interior of the abdominal organs, just as the physical is an examination of the exterior of these organs. The true roentgenologist is a clinical interpreter and not a mere medical photographer. He should, therefore, be a physician of wide clinical experience. Formerly diseases of the abdomen made chronic sufferers and dyspeptics, and too often mortalities; dyspeptics were chronic gulpers of bismuth, alkalies and purgatives. Now the abdominal patient is an opportunity for accurate study and early diagnosis. If he is taken early enough, he may have a relief of morbidity, and usually a cure.

Taking indigestion as a generic symptom to include all abdominal complaints and abnormal processes, the antagonist of indigestion is diagnosis, either possible, probable or certain. The patient's per-

*Read before the East Tennessee Medical Association at Morristown, October 16, 1919.

sonal complaint, "indigestion," falls into one of the following four great diagnostic and causal groups:

I.—INDIGESTION DUE TO FOOD

The food may be raw, improperly cooked, insufficiently chewed, decayed, or the mixture of well prepared foods may be impossible of digestion. The green apple of boyhood illustrates a raw food; too greasy and undone cabbage, an improperly cooked food; spoiled fish or shrimp, a decayed food; sauer kraut, ice cream and lobster, well prepared foods, chemically improper for easy digestion. Only to such indigestion can the term "acute indigestion" be applied, and here its use should be limited. It is too often applied to a sudden abdominal agony or catastophe as a blanket to cover the ignorance of the doctor and to afford relief to the minds of the anxious relatives or to furnish a text for clinical gossip and sick talk among the neighbors.

Aside from acute food indigestion, there are more than thirty different causes for acute pain in the abdomen. To paint the sign "acute indigestion" on any one case of the acute abdomen is unwarranted, and may bring forth clinical repentance. It is better to relieve the agony and act with the best judgment we have than to give wrong names to what we do not understand. All skin diseases can not be covered by the one word dermatitis. Acute indigestion due to food only has a history of an offending article or meal, griping, nausea, and usually diarrhea. A saline, or an opiate with a saline, usually relieves. The cases are rare compared to the other groups. The pains and aches of ulcers, gall-stone colic, appendicitis, renal colic, adhesions, intussusception, acute pancreatitis, gastric and intestinal cancers, are not acute indigestions, but clues to a serious pathology.

Ptomain poisoning is always a questionable and doubtful diagnosis. It has been a blanket name for a perforated duodenal ulcer, a gangrenous appendix, or an angina pectoris, abdominal in origin. Ptomains are "soluble basic nitrogenous substances found in the media in which bacteria have been growing." The majority of ptomains are not very poisonous. Food decayed by bacterial activity is the source of ptomain poisoning. Decayed food, in this country, is very rare. Food poisoning is very infrequent. The commonest source is decomposed fish, meats, canned meats and milk products, as cheese, milk and ice cream.

Indigestion due to food is gastric or intestinal in location and symptoms. One should be reasonably certain that food is the cause before making a verbal diagnosis of "acute indigestion" or "ptomain poisoning," and a better term than either is indigestion due to food.

II.—INDIGESTION DUE TO NEUROSES

This is the old "nervous dyspepsia," and is unwisely sharply classified as motor, sensory, or secretory in character. Increased or decreased motility, pylorospasm, nervous eructations, gastralgia, pneumatosis, gastric hyperesthesia, nervous nausea and vomiting, bulimia, acoria, nervous anorexia, hyperacidity and hypersecretion are all varieties of functional disturbances due to or accompanying the somasthenias, neurasthenias and psychasthenias. The point is that functional neuroses may cause functional gastric and intestinal disturbances. Here the stomach is not primarily a diseased stomach, but a weak stomach, easily and frequently upset. A "weak stomach" is a characteristic clinical possession of many people, but it is not necessarily a diseased stomach.

Along with this lot of enumerated functional disturbances goes also vagotonia and sympatheticotonia. The former may be defined as a hypertonus of the gastrointestinal tract, due to stimulation of the vagus, and characterized by an increase of the motor and secretory functions, such as cardio-spasm, pylorospasm, hyperacidity, intestinal spasm and constipation. Sympatheticotonia is rather an inhibitory influence acting through the sympathetics and is characterized by atony, hypoacidity and atonic constipation. The conditions overlap with other clinical symptoms and form often a mingled complex of neurosis and variable digestive disturbance.

The diagnosis here depends usually upon absence of severe pain; the nutrition is usually good, but the proof must be had that there is no anatomical lesion present in the abdomen. A duodenal ulcer is not a gastric neurosis; often though in a nervous woman the complaint may simulate a pylorospasm due to a vagotonia. Examination, x-ray and gastric titration furnish positive or negative proof of neurosis

or organic lesion. Even neurasthenics do not complain of indigestion just to complain.

III.—INDIGESTION DUE TO SYSTEMIC DISEASE

This is a most frequent condition. The nausea and vomiting of brain tumors and of pregnancy, the gastric crises of tabes, the gastric upset of an epileptic attack, the gastric irritability, dilatation and gastritis of pulmonary tuberculosis; the flatulency, hypoacidity and fulness of advanced cardiac diseases; the headache and nausea of nephritis; the so-called "bilious attacks" of malaria and early anemia; the vomiting in cerebral hemorrhage; the nausea and vomiting of the onset of acute infectious diseases in children; the nausea and secretory disturbance accompanying severe focal infections of the mouth, head and throat are all illustrations in point.

The discovery of the systemic disease often solves the problem. The gastric symptoms as in pernicious anemia — the hypoacidity and gastric indigestion—may be the first symptoms. Nowhere is this more clearly illustrated than in pellagra; the diarrhea, stomatitis, anorexia, are but gastrointestinal symptoms of the systemic snake in the grass we call pellagra.

Here again the abdomen conceals, and only examination, x-ray, gastric titration and fecal examination may clear the doubt or prove the signs. With the absence of organic abdominal pathology, the therapeutic attack is on the systemic disease. In a child nausea and vomiting may usher in an indigestion due to food, an acute meningitis, a pneumonia or a gangrenous appendix. Truly, the physician must be instinctively and clinically wise. To instruments of precision must be added his clinical judgment, of all clinical possessions the most precious.

IV.—INDIGESTION DUE TO ABDOMINAL PATHOLOGY

Here is included the largest group of medical and surgical cases. The following table from Cabot summarizes the intestinal parasites:

ANIMAL PARASITES

The most important are:

I. Serious

1. Amoeba histolytica.
2. Hookworm:
   (a) Uncinaria americana.
   (b) Anchylostoma duodenale.

II. Relatively Mild

3. Bilharzia haematobium.
4. Balantidium coli.
5. Tape-worms; the beef-worm (Taenia saginata) is very common; the pork-worm (Taenia solium) is rare; the miniature tapeworm (Taenia nana) and the fish-worm (Dibothriocephalus latus) are fairly common. Several other forms occur in foreign countries.
6. Strongyloides intestinalis.

III. Usually Harmless

7. Ascaris lumbricoides (round-worm).
8. Oxyuris vermicularis (thread-worm; pin-worm).
9. Trichiuris trichiura (whip-worm).
10. Trichomonas intestinalis.
11. Lamblia intestinalis.

About thirty per cent. of the soldiers from the Southern states had uncinariasis infection. Think of the effect on the efficiency of the South. Probably two-thirds of all the chronic dysentery in the South is amoebic dysentery. A rectal smear or mucus from a warm stool and a microscope will solve the problem, and emetine is usually a specific.

The morbid anatomy of the abdomen and the diagnostic possibilities of acute and chronic conditions is almost amazing. The influence of the nervous system, extra-abdominal systemic disease, the presence of parasites, make us diagnostically wary, and cause us to seek after sign and proof of local abdominal pathology. A summary of this wide pathology follows, but it is impossible properly to modify and qualify in such a summary; omissions are necessary, and some statements may even appear dogmatic by reason of their brevity:

A. First the long-standing, untreated focal infection, then the irritating and eroding ulcer, which is the "soil of choice" for more than fifty per cent. of gastric cancers, and lastly the cancer, constitute the clinical chronology of malignancy, and the patient names it all "indigestion."

B. Twenty raisins at 9 P. M., eight arrowroot crackers and two glasses of water, the Reyfuss tube and extractions in 45, 60 and 75 minutes, then the motor meal, fluoroscope and ray are a routine necessity in abdominal diagnosis.

C. Difficulty in swallowing points to esophageal diverticula, cardio-spasm, traumatic stricture or carcinoma.

D. Gastric ulcer is indicated by indigestion, nausea, boring pain at intervals of one to three hours after meals, hyper-

acidity usually, positive roentgen findings, as filling defect or crater, incisura opposite ulcer, hypermotility and pain on pressure over filling defect.

E. Cancer of the stomach forms two-thirds of alimentary tract cancers and as such rarely produces positive symptoms until advanced hypersecretion, pyloric obstruction or palpable tumor develops.

F. Complaints of weakness, apparent anemia, loss of weight, vague indigestion in one over forty, should lead to a study of the stomach. Gastric cancer is indicated by long indigestion, loss of appetite, gas, nausea, vomiting, weakness, pain, distress, blood in stools or vomitus, decreased or absent free acid, filling defects and hour glass contraction.

G. Gastric syphilis is indicated by luetic history or Wassermann, carcinomatous chemistry and ray findings, loss of weight, absence of hemorrhage and tumor, continuous symptoms and pains, with rapid improvement under antiluetic treatment.

H. Duodenal ulcer is indicated by chronic and periodic indigestion, "spells" of comfort and discomfort, pain in relation to meals of two- to four-hour intervals, habits of soda, sleeping on abdomen, food for relief, pain spot, hemorrhage, weakness and irritability. Eighty per cent. of duodenal ulcers occur in men and twenty per cent. in women.

I. Chronic cholecystitis may cause definite distress in relation to food, or ease from food or alkalies; periodic attacks of comfort and discomfort, hyperacidity and hemorrhage, and thus be confused with ulcer. Duodenal ulcer and gall-bladder pathology are often so alike that they are easily mistaken for each other.

J. Gastric hemorrhage alone does not warrant a diagnosis of ulcer or justify surgery, but necessitates a diagnostic study, involving respiratory, cardiac and blood diseases, systemic diseases and toxemias, pelvic disease, cancer, appendicitis, cirrhosis, arteriosclerosis, hypertension, tabes and focal infection.

K. Gall-bladder pathology, ranging from thick mucus, "strawberry wall," to purulent infection or stones, is indicated by chronic indigestion, inability to eat certain foods and fats, gas, belching, fullness after eating, hyper- or hypoacidity, without demonstrable ray findings in stomach, duodenum or appendix. Eighty per cent. of gall-bladder pathology and stones occur in women and twenty per cent. in men.

L. At times one is unable to decide whether a cholecystitis, a duodenal ulcer, or an appendicitis be the pathology, but the decision to do an abdominal exploration promises safety and relief to the patient.

M. It is probably worse not to explore, because an exact diagnosis can not be made, than it is to operate without investigation in the effort to make a diagnosis; the first is clinical fear and the second is clinical laziness.

N. Acute pancreatitis is indicated by initial, spontaneous and pressure pain in the upper abdomen, vomiting, rising pulse and falling pressure, symptoms of shock and collapse, absence of rigidity, early meteorism, with the usual history of age, plethora and a heavy meal.

O. Chronic pancreatitis is indicated by bulky, fat stools, excess fat globules and fatty acid crystals, undigested muscle fibres, acid stools, often a dilated gall-bladder, jaundice, rectus and epigastric resistance. The probable pathology varies from an interstitial or nodular sclerosis or inflammation to cancer, cyst and pancreatic stone, usually of calcium carbonate. Syphilis or tuberculosis may cause the inflammation, and cancer of common duct or duodenum simulates pancreatic disease.

P. Acute appendicitis is indicated by weakness, ache, pain generalized or localized, leucocytosis, fever, rapid pulse, position, facies, clinical experience, bearing in mind that resistance or rigidity of the abdominal wall covers acute inflammation and that purgation invites perforation and peritonitis.

Q. The adhesive appendix (so-called chronic appendicitis) is indicated by previous attacks of acute appendicitis, soreness in right lower quadrant, localized pain on extreme movement, cecal pain on ascending sigmoid pressure, ray findings of stricture, kinking, patulousness and adhesions, though neuroses, Jackson's membrane and Lane's kink, colitis, patulous ileo-cecal valve and cecal cancer are all complicating differentiations.

R. The spleen is painful in infarction, abscess, perisplenitis, torsion of the pedicle and rupture; enlarged and firm in the leukemias, hepatic cirrhosis, portal vein thrombosis, amyloid disease, various ane-

mias and polycythemia; nodular in splenic tuberculosis, gummata and cancer; slightly enlarged and usually soft in acute infectious diseases, as the typhoid group, typhus, relapsing fever, malaria, endocarditis, and less frequently in pneumonia, tuberculosis, rheumatism and the acute infections of childhood. The spleen is the healthiest abdominal organ.

S. Multiple liver abscesses, with fever, pain and leucocytosis are usually pyemic in origin; a single large abscess, amebic. Secondary cancer is the commonest tumor of the liver and the deepest jaundice and is accompanied by emaciation, fever, ascites and pain. Hanot's cirrhosis is very rare, selects the young, males usually, and presents a large, smooth liver, persistent jaundice, a large spleen and prominent abdomen. The cardiac or nutmeg liver is large, smooth, tender, and may, with tricuspid incompetency, show expansile pulsation, with ascites, indigestion and mild jaundice. Alcoholic cirrhosis and syphilis of the liver present the history of small, firm livers, hobnailed or nodular type, with little pain or jaundice unless pressure occurs on bile ducts. The lardaceous liver is large, smooth, firm and associated with chronic tuberculosis, suppuration or syphilis. Tuberculosis of the liver is rare, actinomycosis undiagnosable unless it be found superficially, and hyatid cyst is rounded, smooth, regular, painless, single or multiple, and, if found early, may be associated with eosinophilia. Tropical liver is a uniform enlargement, the result of repeated congestion, with tenderness, pain and fever. Any obstruction of the hepatic common duct, even a simple catarrh, will cause jaundice. The innocent gall-stone does not exist. To treat a patient for a secretory neurosis when the hyperacidity is a reflex from an empyema of the gall-bladder does not relieve the patient and mars scientific medicine.

T. Acute peritonitis is indicated by sudden onset, continuous pain, usually constipation, distension, hiccup, rigors, rising pulse, sunken face and restlessness, leucocytosis, rigidity, visible peristalsis, variable fever, rapid and shallow respiration. It is well to be sure that the abdominal pain is not referred from a pneumonia, a diaphragmatic pleurisy, or tuberculosis. One-fourth of all peritonitis is secondary to acute appendicitis.

U. Positive guaiac test for blood in the stool is an aid to diagnosis, particularly of cancer and ulcer, but with a mucosa of thirty feet, too great importance must not be put upon this finding, even though meat and meat soup are withheld during the tests. Only thirty per cent. of ulcers bleed enough to be called hemorrhagic ulcers.

V. Obstruction is indicated by severe pain, fecal vomiting, often tumor, visible peristalsis, meteorism, obstipation, rapid pulse and collapse. The previous history and age of the patient often point to the cause and location.

W. The stool is a key to intestinal pathology and its examination may reveal ova, intestinal parasites, pathological bacteria, amebae, pus, blood, abnormality of amount, color, size, form, consistency, fat, starch, undigested food, excess of saponified fat, absence of bile, signs of hepatic and pancreatic disease, and feces typical of sprue, the diarrheas, typhoid and yellow fevers, and pellagra.

X. Constipation necessitates diagnostic study, including an account of the habits, diet, physical and stool examination, weighing carefully the evidence and influence of enteroptosis, kinks, cancer, cysts, adhesions, intussusception, tumors, pregnancy, ascites, obesity, age, uterine displacements, spasm from vagotonia, atony from sympatheticotonia, organic nervous diseases and strictures. Any persistent chronic constipation warrants a ray study. Intestinal and pelvi-rectal constipation or dyschezia should be distinguished. No constipation is ever cured by cathartics.

Y. Flatulence of gastric origin is due to air swallowing, gastric ulcer and cancer, fermentation, pyloric obstruction, gastric atony and neurosis, enteroptosis, lung diseases, angina and cardiac diseases; of intestinal origin to intestinal fermentation, hysteria, organic nervous diseases, intestinal obstruction, acute pancreatitis, peritonitis, acute infections as typhoid and pneumonia, post-operative and terminal states. Constipation is not usually characterized by flatulence. Fat, fluid, fetus, flatulence and tumor are the great causes of the enlarged abdomen.

Z. Acute diarrhea results from a catarrhal enteritis of infectious, cold, nervous or poisonous origin. It may be a symptom in cholera, appendicitis, anemia, goiter and thyroid, yellow fever, uremia

and Addison's disease. Chronic diarrhea occurs in sprue, malaria, pellagra, amebic dysentery, pancreatic disease, neoplasms, ulcerative enteritis and enteric diarrhea. In dysentery there is tenesmus, plus blood and mucus. Persistent diarrhea is a dangerous symptom.

I am indebted to the methods and writings of the Mayo Clinic, Dr. John B. Deaver of Philadelphia, Dr. Harry Hewes of Boston; to An Index of Differential Diagnosis by French; Diseases of the Digestive Organs, by Aaron; The Acute Abdomen, by Adams and Cassidy; De Quervain's Clinical Surgical Diagnosis; The Internal Secretions and the Nervous System, by Laignel Levastine; Physical Diagnosis, by Cabot.

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RELATION OF ENDOTHELIUM TO PURPURAS ANGIO-NEUROTIC OEDEMAS AND ALLIED DISTURBANCES

By E. C. Thrash, M.D.,
Atlanta, Ga.

Uncle Remus once said: "Some poet whose pipes are of sufficient range and volume should write an ode to corn."

My thoughts, observations and studies of endothelial cells during recent years have caused me to feel that the combined knowledge of biological and immunilogical scientists will, in the near future, write into physiology and pathology a story of this cell that will be an awakening to its observers.

The most intensive and strongest attribute of life processes is defense, and in the writer's opinion the most powerful factor in the defense of warm blooded animals is the endothelial cell. Of all the tissues of the body, students of immunology in the past have given the palm to the leucocyte, but the writer will attempt to show that the defensive substances in this cell must evolve from other cells and chiefly from endothelium. The plasma saturating leucocytes contain antibodies, but they are developed chiefly from endothelial cells. All credit was given white blood cells in the earliest studies of immunity because they were more conspicuous in their activities, plasma receiving attention at a later date. In a word, white blood cells are only vehicles carrying protective substances built by the metabolic action of other cells.

All closed cavities and the vascular and lymph systems, as we know, are lined with a thin glassy coat which we are too much inclined to think of as serving only the mechanical purpose of forming a part of the viscus wall which holds and aids in the distribution of contained fluid. This is only a minor part of civilian duty performed by soldiers, not in uniform, as these flattened cells can perform all usual duties in secreting defensive substances or antibodies under normal conditions without becoming globular and thereby inefficient in forming tube walls for holding and carrying fluid. They assume a globular shape when irritants are increased to a degree that their chief purpose is to fight, and they then become poor fluid containers, thereby allowing some of the latter to leak out. This is introductory to the subject matter that follows.

One of the first steps in immunity is agglutination or the clumping of substances to be destroyed. The purpose of this, no doubt, is to lodge them in small capillary areas where they may be at rest for a period sufficiently long for phagocytic activities to lend their aid in the destruction of the invading enemy. Our first impression of this phagocytic process was that it is carried on entirely by the polymorphoneuclear leucocytes, but the endothelial cells of the capillaries surrounding these clumps of bacteria play the chief role directly and indirectly in this destructive process.

It may appear a far cry from these statements to purpuras and allied processes, but I shall attempt to show that these cell activities are directly associated with and the cause of them. When a powerful enemy has invaded the economy these endothelial civilian-soldier cells become so active as soldiers that their civilian duties are neglected. When these cells assume defensive duties they become globular and mitotic. In ordinary invasions of an enemy there is a balance between the defensive and mechanical action of the cells and the endothelial walls of the tubes maintain their integrity. If the poison is virulent and severe, producing a profound disturbance as it courses along the walls

of the stream, a powerful effort is brought forth to remove it. Endothelial cells then not only secrete antibodies, but they rise up and project into the stream to catch passing bacteria by their agglutinic action and destroy them. This may or may not be successful. If there is failure an inflammatory exudate is the result, terminating in thrombosis. No thrombus can begin in a normal vessel wall, but must have its origin in both a pathological and physiological action of this kind. Thrombotic phlebitis, so familiar to us all, is an example.

Some bacteria enter easily into dissolution by the action of antibodies while others do not. I shall attempt to show how endothelial cells behave in the presence of them both. The most important of the latter class are the tubercle bacillus and spirochete. I shall discuss only the tubercle bacillus as spirochetic activities are more complex, and the essay must be limited. The bacillus clumps as usual, lodges in the capillaries, but on account of its waxy consistency and endotoxins does not easily undergo dissolution. The result is, an attempt is made to wall it in and the initial steps are taken by the endothelium of the capillaries rounding up and forming epithelioid cells, which cells begin the formation of the granuloma that later becomes a tubercle. These cells lose their flattened shape in forming a protective wall around the germs, therefore the capillaries must disappear. The wall is built around the invading germs by cells derived from several sources, but chiefly from the endothelium of the capillary vessels which causes these vessels to disappear, rendering tubercles non-vascular. If this process becomes exceedingly active capillary vessels may be disintegrated more rapidly than the blood flow can be cared for, and in this way we get capillary hemorrhage in incipient tuberculosis before there are any other clinical signs or symptoms of the disease existing. In other structures than the lungs purpuras result instead of frank hemorrhages, as blood passes in this case into the tissues instead of the air vessicles. This tells the story of all toxic capillary hemorrhages except there is not a defensive walling off of those bacteria that are easily disintegrated by bacteriolysins, and the endothelial cells are not so materially disturbed.

In profound intoxications like yellow fever, streptococcus infections, virulent chemical poisonings, as poison gases or salvarsan, smallpox, severe exanthematous disease, snake venom, typhoid fever, and typhus fever, endothelial cell activities for immunizing purposes become so great that there may be a hemorrhagic condition due to the general capillary disintegration on account of the cells in the walls of those vessels changing their morphology for defensive purposes, becoming globular instead of flat and tube-forming, allowing hemorrhage to take place between them. There either may or may not be a clumping of bacteria and plugging of the arterioles causing microscopic infarcts, though when the vessels are occluded in this way the hemorrhage would naturally be more likely to occur.

I purposely did not mention hemorrhagic malaria in this connection because that is produced from capillary disintegration caused not only from endothelial cell changes for immunizing purposes, but also from the blocking of the capillaries that are too small to allow cells containing full grown schizonts to pass through them, causing the vessels to disintegrate on account of the weakening and death of endothelial cells by pressure. Many capillaries are too small to transmit even normal red blood cells without the latter folding as they pass through. The schizonts usually remain lodged until they sporulate, but when the endothelial cells become too active the effort of defense, together with pressure death of the cells, may cause hemorrhage. Myelogenous leukemia produces purpura and hemorrhage by the myelocytes blocking the capillaries in the same way. In malaria and luekemia the capillaries are blocked by over-developed pathologic blood cells, while in infections the same results are produced by agglutinated bacteria.

Cell structures busy themselves as much in defending the body against chemic endogenous or animal poisons as against bacterial toxins, so we may have either hemorrhage or edematous disturbances or both where only poisons exist as chemicals, food poisonings, serum poisonings, gas, snake venom, endochrinal disturbances and others. They are hemorrhagic or edematous in proportion to the severity, allowing the whole blood to flow out where there

is sufficient separation of the endothelial cells and only plasma (edema) where this separation is less marked. Edema of this type is erroneously called angio-neurotic edema and is produced by the endothelial cells changing their morphology in making an effort to remove the poison. They round up and separate from each other sufficiently for the fluid portion of the blood to pass out of the tissues, but not so much so to permit the passing of the cells. Should the poisons be virulent enough to affect the cells more profoundly or should there be clumps of toxic organic matter as bacterial impacted in the vessels then there may be purpuras or frank hemorrhages. These may be either associated or not with erythema or exanthems.

SUMMARY

So-called idiopathic capillary hemorrhages purpuras, angio-neurotic edemas, petechial hemorrhages, all result from the changing from flattened tube-forming structures to mitotic globular cells for the purpose of defending the economy against an invading enemy in the form of chemical bacterial animal or endogenous poisons, and in this way disintegrating the capillaries, arterioles and venules leaving them in such a state that through their walls serum may transude to produce edema, red cells may pass out by diapedesis, to produce purpura and from their ends blood may flow to produce frank hemorrhage.

NOTES ON HISTORY TAKING*

By Gordon Wilson, M.D.,
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In taking the history of a patient, the object is to gather all the necessary facts which might aid in arriving at a correct diagnosis, and on that account it is better that unnecessary details should be included rather than some essential omitted. You should write first the name of the patient, indicating whether married, single or a widow, then the address and age of the patient, and the date of taking the history. These facts are, at times, of some importance, as the possibility of venereal disease in a married woman from her husband would be naturally greater than in an unmarried woman, and at times the question of age plays an important part in the consideration of malignant disease, especially carcinoma of the stomach. The address, although frequently unimportant, is, at times, a help in the case of infectious diseases, and is always of help in tracing your patient. Occupation should also be noted, especially as some occupations render one more liable to certain diseases, as, for example, a painter not infrequently develops lead colic or lead paralysis through absorption of white lead which is the basis of so many paints. Again, for example, a seaman, especially one engaged in long voyages, would be more apt to have a tropical disease than a resident of this locality. These examples of occupational disease can be multiplied many times. After obtaining these introductory facts one should note at the beginning of the history the complaint of the patient briefly stated, as: "Cough," "indigestion," "headache," "rheumatism," "feeling badly," "diarrhea," etc. This "complaint" should consist only of a line or two at the most, and simply serves as a slight guide in obtaining later a complete account of the illness.

It is well at this point (before getting the patient's account of his illness) to obtain certain facts about his family, and his own "past history," which might aid us in getting a more accurate account of the present illness and arriving at a correct diagnosis.

This portion of the history is frequently spoken of as the "family history," and the reason for asking these facts is that certain conditions are inherited, such as arterio-sclerosis, with its resulting kidney and cardio-vascular diseases, as Bright's disease and apoplexy. The members of the family that one should *always* ask about are: father, mother, brothers, sisters, husband or wife, and children. And in regard to these you should state that they are each one alive and well, or if dead, give not only the cause of death, but also *the age and date of death*, and in the case where a member of the family has died from an infectious or communicable disease, such as tuberculosis, note the fact as to whether your patient was living with

*A lecture on history taking delivered to junior medical students.

this person at the time of his death, or while he was suffering from the symptoms of that disease. You will notice in the model history attached to this lecture how these facts can be briefly stated, and yet sufficiently complete to be an aid. It is well at this point, in the case of a married man or a married woman, to ask whether there have been any miscarriages, on account of miscarriages occurring so frequently in those infected with syphilis. When a mental disease or neurotic condition is suspected, collateral relatives should be considered, as well as the immediate family.

We now come to that part of the history known as the "past history," and it is here that we note whether the patient had or had not had certain diseases, and our reasons for asking these questions are that, first, one attack of a disease frequently renders a person somewhat immune to other attacks of the same disease (e. g., measles); second, certain diseases render one more liable to another attack of the same disease (e. g., pneumonia); third, certain diseases have a tendency to be followed by other diseases, as nephritis following scarlet fever, pneumonia following whooping cough, tuberculosis following measles, and aneurism, locomotor ataxia, paresis, etc., following syphilis. It should be noted in the history whether or not the patient has had any of the following diseases: Measles, chorea, diphtheria, chickenpox, whooping cough, scarlet fever, pleurisy, pneumonia, typhoid fever, malaria, tonsilitis, acute articular rheumatism (which is so commonly followed by endocarditis and valvular disease of the heart), and the venereal diseases, syphilis and gonorrhea. When noting the fact that the patient has had one of the above diseases, you should also note when he had the disease, giving either his age at the time of the disease, or else the year, and ask him whether he had any complications with it. It is important to note in your history the diseases above mentioned which he has *not* had. In asking a man in regard to whether he has had a venereal disease, don't put the question to him: "Have you ever had gonorrhea?" but ask him: "When was the last time you had gonorrhea?" as it is human nature to deny such an infection, but when the question is put in the latter manner, you not infrequently get a truthful answer, which you might not otherwise get.

After having obtained these facts in regard to the past history of the patient, it is then well to ask about your patient's habits, especially in regard to the use of tobacco, and more especially the amount and form of alcohol taken, as a heavy drinker is much more liable to certain diseases, such as chronic Bright's, arteriosclerosis and cirrhosis of the liver. With a woman it is well at this point to take up the menstrual history, noting at what age it began, as in those women in whom it begins very early it keeps up very late, and in those starting late the menopause comes earlier. The duration of the period should be noted, its regularity, the presence or absence of pain, and *what is of the greatest importance, any change, such as increase or decrease in flow, greater frequency, increased pain, etc., which has only been present for a comparatively short time.* The reasons for noting the above, especially change in character, is that in older women a marked increase of flow and increased frequency should one suspect malignant or benign growths within the uterus. While a decreased number of days or a decreased amount of flow in a young woman would point towards some debilitating condition, such as tuberculosis, Bright's, etc., etc. The date of the last menstrual period should be noted. Excessive coffee or tea drinking should be noted, especially in case of indigestion or nervousness.

Operations should be noted, and their dates.

We are now prepared to take up the present illness of the patient for which he has come to consult us, and at the very beginning of this part we should always note the *date and character of the onset* of the disease, which is a great help in showing whether we are dealing with an acute or chronic disease, and not infrequently the character of the onset is almost diagnostic, as, for example, the sudden chill accompanied by the stabbing pain in the chest with high fever, which is so frequently the way in which lobar pneumonia starts in an adult. At the beginning of this "present illness," we should put down the account briefly as the patient gives it to us, but we should also not fail to ask about the presence or absence of

symptoms which point towards diseases of certain tracts of the body, or rather the symptoms of these tracts, and my own plan is to invariably ask about symptoms of the following tracts: Alimentary, cardio-vascular, pulmonary, genito-urinary, nervous, joints, special senses, and those unclassified ones, such as fever, chills, sweats, gain or loss of strength and weight, pain, sleep, etc. After the introduction which you have gotten from the facts voluntarily presented to you by the patient, you should then *systematically* quiz them about the presence or absence of symptoms of the tracts noted above, and I generally begin by asking about the appetite, whether good, poor or variable; bowels, whether regular, constipated or diarrhœaic, and if diarrhœa is present, one should note how long it has been present, the number of stools a day, whether blood is present in the stools or not, and also whether there is tenesmus (i. e., straining). After noting these points, one should always ask whether the patient has had any indigestion, noting especially whether he has had pain in the abdomen, noting the character of the pain, the location of the pain, the direction in which it radiates, and whether it bears a relation to the taking of food, as, not infrequently, the pain of gastric ulcer is present only after taking food. If there has been pain, one should also ask whether there was tenderness as well, and here again one should locate exactly (i. e., in epigastrium) where the tenderness is noted. In addition to pain, one should ask whether there has been fullness, weight or flatulence after eating, also inquire about nausea and vomiting, and if vomiting has been present, one should note on the history when the vomiting takes place (i e., the morning vomiting of pregnancy, and also the morning vomiting in alcoholics). Again one should note the character and amount of the vomited matter, as this is frequently a great aid as, for example, the vomiting of large quantities of blood in cases of cirrhosis of the liver, also the vomiting of blood in gastric ulcer, and also the vomiting of very large amounts of fluid in dilated stomach. If the patient has had no symptoms of the alimentary tract one *should always note on the history* the following: "Appetite good, bowels regular, and no digestive symptoms." It is well in considering the symptoms of the alimentary tract to bear in mind the glandular structures associated with it, such as the liver and pancreas, and one should ask about the presence or absence of jaundice, and where disease of the pancreas might be considered, one should always ask whether the stools have appeared to the patient to be excessively large or markedly yellow, due to the excess of fat, both of which points are important symptoms in pancreatic disease.

After having noted the presence or absence of symptoms of the gastro-intestinal tract, I next turn to the pulmonary, and here one should always ask about cough, and if that is not present, ask the patient whether he has had a clearing of the throat or catarrh. If any one of these three are present, ask about its duration, whether it has increased or decreased in severity, the time of the day or night at which it is most noticeable, whether paroxysmal or not, and whether accompanied by the raising of sputum. If sputum is brought up, ask about the amount of it, the color, and whether or not it has odor or taste. Always ask whether the patient has *ever* coughed up any blood, bearing in mind that practically always, in people under middle age, the spitting of blood unaccompanied by marked constitutional symptoms means tuberculosis, save in mitral stenosis. One should here ask about pains in the chest, especially when it is unilateral, and whether the pain is influenced by respiration, as it is, generally, in pleurisy. One should always ask about hoarseness and aphonia, noting the duration and severity, if either of these two conditions are present. As a rule, I, myself, at this point ask whether the patient has lost weight or lost strength, as those are two of the most important symptoms of pulmonary tuberculosis in young adults. Always note the patient's maximum weight and the date of it; his usual weight for the past few years, and his weight the last time before seeing you, and the date of this weighing. Persistent weight under the "insurance" minimum should always direct one's attention to a most careful lung examination. And, here again, I generally ask as to whether the patient has had chills, fever or sweats, and if he has, one should note down when they began and when they occur, and note

whether there is any regularity in their appearance, such as you find in malaria. If the patient has none of these symptoms above named, I then note: "No pulmonary symptoms. No chills, fever or sweats. No loss of strength and no loss of weight."

In taking up the circulatory system it is well to remember that an early and important symptom of cardiac insufficiency is dyspnoea out of proportion to the exercise taken, and to arrive at that one can ask if the patient gets out of breath by walking up stairs, and if he does, you should note in the history "dyspnoea on slight exertion." The presence or absence of orthopnoea should be noted, and also the presence or absence of edema of the ankles. In older people, one should inquire as to whether they have had angina-like pains in the left breast or arm. Palpitation of the heart (rarely indicative of cardiac disease) should also be inquired about, and if present, the duration of it should be noted, and also at what time of the day or night patient notices it. The absence of cardiac symptoms should be noted.

The symptoms of the genito-urinary tract which one should always inquire about are: Increased frequency of micturition; the amount excreted; edema, and difficulty in urination. If frequency of micturtion is present, it may be due to two causes. First, irritation of the bladder, causing the frequent passing of small amounts of urine, as in cystitis, or second, the distention of the bladder, due to excessive excretion, such as we find in nervous states, interstitial nephritis, and diabetes insipidus and mellitus. On account of the above, therefore, one should note in all cases where there is an increased frequency of micturition whether there is increased excretion or not. One should also ask whether there is pain during or after micturition, the presence or absence of blood or bile in the urine, and also here again we ask about edema of the ankles on account of its being the cardinal symptom of parenchymatous nephritis. In old men difficulty in urinating, dribbling and a small stream of urine suggest prostatic trouble.

One should inquire whether the patient has had any joint symptoms, such as pain or swelling affecting any joint, and if it is present, one should note what joints are affected, when they became affected, whether it interferes with their normal movement, and if pain is present, its *exact* location, character, time of greatest severity, radiation, whether increased or decreased by movement, accompanied or unaccompanied by tenderness, and if tenderness is present, its point of greatest intensity. If no symptoms are present, one should always note on the history "No joint symptoms."

The symptom of the nervous tract that one should inquire about in all cases is pain. And if pain is complained of *in any part of the body* one should invariably note in the history the onset and duration of the pain, where it is anatomically, the character of the pain, its times of severity, whether continuous or not, and if increased, by what, and always remember that one can have pain without tenderness, as in lumbago; or the reverse, tenderness without pain, such as one notes in acne occasionally. If tenderness is present it is important that its exact location should be noted. This difference between pain and tenderness is very well shown in abdominal conditions, as in appendicitis we may have pain about the umbilicus, but the area of tenderness being over the appendix, while again in lead colic we frequently have severe cramp-like pain, but as a rule unaccompanied by tenderness. In addition to pain we should consider under this head the mental symptoms, such as change in character, depression, nervousness, etc., etc. Headaches should here be asked about, and if present should be described like any other pain. Vertigo, difficulty in walking, anesthesias and paresthesias should be asked about when necessary. Localized weakness or paralysis should be described as fully as is pain.

Under the head of special senses we should ask about recent changes in vision on account of the frequency with which interstitial nephritis first shows its presence by retinal hemorrhages. Ringing in the ears and deafness should be asked about, as should throat symptoms. Taste symptoms are rare, and are not generally asked about in a routine history.

The above is a brief outline and guide to history taking. Of course, the greater knowledge a person has of diseases and their symptoms, the better the history he

should obtain, but it has been my experience that the best histories are those obtained in a systematic manner, as above, by one who knows less, rather than an unsystematic history gotten by a more brilliant and studious doctor.

It is well to bear in mind that what the patient tells you is not always true, as the laity believe "rheumatism" means any pain in a joint or any mild pain in other parts of the body. Again, they think of chills, fever and sweats as always meaning "malaria," while we know that these symptoms are common in advanced tuberculosis and septic conditions. On account of the above we should never accept the answer "rheumatism" or "malaria" as being true until we have satisfied ourselves by careful questioning of the patient.

The need of a systemic history is well shown in many cases of chronic tuberculosis, where the patient consults the doctor on account of the marked digestive symptoms present, and unless asked, will fail to mention the cough, which he has become so accustomed to that he fails to notice it.

The history of a patient should always be written down, not only for the sake of keeping a record of the patient, but because one is much more apt to be thorough by doing so, and very frequently the question of diagnosis depends most on the thoroughness of the history.

HISTORY

Miss Jennie Jones—Aged 20, clerk in hotel, Saranac, N. Y., October 1, 1911.

Complaint—"Frequent colds and run-down condition."

Family History—Father living and well. Mother died of "pneumonia" (?) when patient was three years old. Has been told by her father that mother's health was poor, and that she had a cough for a year before her death, which occurred two months after the birth of youngest brother. Two brothers living and well. No brothers or sisters dead, and no sisters living.

Exposure—Lives in a hotel at a health resort for consumptives. (See family history.)

Past History—Had measles at age of seven, uncomplicated. At age of twelve had severe attack of chorea, lasting almost six months. Had pleurisy four years ago for a few days, but was not sick enough to go to bed. Has not had diphtheria, scarlet fever, pneumonia, typhoid fever, acute articular rheumatism or malaria. Patient not infrequently has a mild sore throat. In January, 1908, patient had "influenza," and on account of slow recovery she went to Florida, where her cough continued for a period of almost two months with slight fever in the afternoons.

Menstrual History—Menses began at the age of thirteen and have been regular since then, lasting from three to four days, and unaccompanied by pain. During the last four months the amount of flow has decreased. Last menses the first week in September.

Habits—Coffee taken once a day in the morning and tea at midday meal. Does not use stimulants.

Present Illness—For many years past patient has been subject to frequent colds, beginning as "head colds," and followed by cough. During the past four months patient had noticed a gradual loss of weight and some loss of strength, as she gets readily tired by even a moderate amount of exercise and feeling that she was run down, desired to be given a tonic.

Alimentary—Appetite is capricious. Has some fullness and weight after eating especially after dinner and supper. Has had no pain, nausea or vomiting. Bowels are regular.

Pulmonary—Has no cough, but says that she has to clear her throat not infrequently, and almost always when she first wakes in the morning. No sputum is brought up. Patient has never coughed up blood. Patient has not had pain in the chest since four years ago, when she had sharp stabbing pains in the right chest for a few days. There has been no hoarseness nor aphonia. During the past four months patient has lost twelve pounds in weight, which can not be accounted for by work, exercise or food. There has also been some loss of strength and loss of interest in things, and patient realizes that she is more irritable than normally. Her maximum weight was 145 in the autumn of 1907, but since then her weight has varied between 130 and 135, being 135 last June, while today her weight on office scales is 123. Patient has had no chills, fever or sweats, but has not taken her temperature with a thermometer.

Circulatory—For many years past patient has noticed that she gets out of breath more easily than her companions, and that this has increased especially during the past six months. She has not noted any swelling of her ankles or feet, nor has there been any palpitation or discomfort in cardiac region.

Urinary—There have been no urinary symptoms.

Joints—No joint symptoms.

Nervous—Has had no pains anywhere and does not suffer with headaches. Sleeps well, and save for slight increase of irritability, has noted nothing abnormal.

Special Senses—No eye or ear symptoms.

Clinical Impression from History (diseased conditions to be considered)—Pulmonary tuberculosis, active; valvular disease of the heart.

PHYSICAL EXAMINATION

Height, five feet eight inches; weight, 123 pounds; "insurance weight," 146 pounds. Patient is a fairly well nourished and well developed young woman. Hair and scalp in good condition. No discharge from ears, no tophi noted. No tenderness over mastoids. Complexion normal and no icterus.

Eyes—Pupils react to light and accommodation and are equal. Sclera and conjunctiva normal. Ocular motions normal, and no exophthal-

mos. Fundi normal.

Mouth and Throat—Lips and mucous membrances of good color. Tongue projected in median line and normal in appearance without tremor. Teeth in good condition with only slight evidence of a mild pyorrhea. No dentistry. Tonsils on both sides are rather small and adherent, while the left tonsil shows a few crypts filled with caseous substance. Borders of both anterior pillars are rather markedly congested.

Neck—Just below angle of left jaw there is noted a mass about the size of a hickory nut, freely movable, rather firm, not adherent to skin or underlying structures, and not tender (gland). No other palpable glands noted. No tracheal tug, and no pulsation of vessels of neck. No thyroid enlargement.

Pulse—Regular in force and rhythm, 96 to the minute, and of fair volume and tension. Vessel wall not thickened. Blood pressure: Systolic, 105 mm.; diastolic, 70 mm.

Heart—Apex beat in fifth interspace three and a half inches from mid sternal line. Palpation shows no shock or thrill, and percussion shows absolute cardiac dullness to extend to apex in fifth interspace, to third rib above, and to a little beyond right sternal margin in fourth interspace. At apex first sound is replaced by a soft systolic murmur which is heard as far out as the mid axiliary line, and is also heard over body of heart. Second sound at apex clear. At base both sounds are clear, but second pulmonic sound is distinctly accentuated.

Lungs—Inspection: Right supra and infraclavicular fossae are somewhat deeper than left. Respiratory movement on right side, on careful inspection, seems to be slightly delayed. Palpation shows slight increased vocal fremitus below right clavicle as compared with left. Percussion of fronts shows a slight impairment of the percussion note from third rib to apex on the right side and apical resonance on right side extends only three-quarters of an inch above clavicle, while on left side it extends one inch and a half above left clavicle. Auscultation of fronts shows nothing abnormal on left side, but on right side breath sounds are exaggerated from third rib to apex with some prolongation of expiration, and an occasional click can be heard above second rib and clavicle. In third interspace, and in fourth interspace close to sternum fine rales can be heard only at end of deep inspiration following expiratory cough. Balance of right front negative. Percussion of back shows nothing abnormal, and on auscultation left back is apparently normal. Auscultation of right back shows the same changes in breath sounds from fourth vertebral spine upwards, while in the interscapular region, between second and fourth vertebral spines, one can hear numerous fine rales on ordinary deep inspiration. Balance of right back negative, save that just below angle of scapula over an area of about one inch in diameter breath sounds are a little distant and a leathery friction rub can be noted.

Spine—Good movement antero posteriorly and laterally.

Abdomen—Not distended. No tenderness or masses made out. Liver and spleen not palpable. (Vaginal and rectal examination not made.)

Reflexes—Romberg negative and patellae reflexes normal.

Extremities (Upper)—Fingers normal and no tremor noted. Joints normal. Lower: No edema nor abnormality of joints noted.

Larynx—Laryngeal examination shows nothing abnormal.

Temperature—Temperature, 99.8. (4 P. M.)

Hemoglobin—(Talquist): 90 per cent.

Urine—(7 P. M., 10 P. M. and 7 A. M. specimens). Acid; S. G. 1018, 1023, 1027; no albumin nor sugar in any specimen; microscopical examination negative.

Tentative Diagnosis—Pulmonary tuberculosis, right upper lobe, active; mitral insufficiency; chronic tonsillitis.

Further studies desirable in order of importance:

1. Frequent sputum examinations for Tubercle bacilli;
2. Temperature record at 2-hour intervals while awake;
3. Stereoscopic x-ray of lungs should sputum be persistently negative;
4. Expert examination of throat;
5. Blood cultures should sputum and x-ray not confirm diagnosis of pulmonary tuberculosis.

THE PRESENT STATUS OF THE WASSERMANN REACTION*

By L. C. Todd, M.D.,
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It is not our object herein to enter into a discussion of the history and development of the complement fixation test for syphilis, the technic of its performance, or a comparison of the advantages and disadvantages of the various technical systems now used. However, the present-day conception of the status of the reaction in clinical medicine is of interest to all medical men and worthy of consideration.

In recent years, the serological test for syphilis has been the object of much unfavorable criticism. There have appeared in our medical publications, articles dealing with the discrepancies in the results of the reactions with the same serum in the hands of different serologists, and also with several serum specimens from the same individual reported by the same serologist. When the reason is sought for this disrepute—much of which may be warranted—it appears that the test is liable to error in either a positive or a negative way unless carefully performed with standardized reagents. This is

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chiefly due to the fact that the reaction is not biologically specific and requires several biological reagents of constantly varying properties for its performance.

In the recent past there have been developed a confusing maze of modifications of the original technic with the view of making the test more delicate, more specific, and more practical. As a result there has been a distinct advance in the delicacy of the test, but the many different methods evolved by various workers has led to a variation in the results; such that there has been a beginning loss of confidence in the reports. Experienced technicians will agree that some variation in reports is expected when different workers are using different antigens and different hemolytic systems, no matter with what care and attention to details the test is performed. But at present the pendulum is swinging in the opposite direction in an effort to secure a standard method at once practical and accurate.

The test is made upon the patient as an aid to diagnosis or for the purpose of following the effect of treatment. It should not be expected to supplant the physical examination in any way. The more recent refinements make it of much more value as a diagnostic means. It is more delicate and therefore more specific. There have been three main improvements toword this end—first, the general acceptance of the fact that the reaction is a quantitative one and all reagents must be handled quantitatively; secondly, the use of more suitable hemolytic systems, and then the use of fortified and purified antigens. All these advances have contributed to the ability of the serologist to make a much more reliable diagnosis of syphilis. Where Wassermann, Neisser and Bruck with the original reaction obtained positive findings in 48 % of primary cases, 87 % of secondary cases, 57 % of tertiary cases and Bering 48 % in latent lues, and Arning 60 % in hereditary lues; Noguchi reports positive findings with the more recent reaction in 92 % of primary cases, 96 % of secondary cases, 89 % of tertiary cases, 77% in latent lues and about 100 % in hereditary lues. Obviously, the percentage figure in the primary cases is dependent upon how early the blood is taken. Craig's figures are very similar except in the hereditary group, but are open to the objection that he was dealing with one type of case, i. e., the soldier, whereas Noguchi's cases were of the general run. We are unable to make a comparison of the findings on the spinal fluid. In running the two systems in parallel, Noguchi and his associates showed that the improved system indicated a decidedly greater number of positive cases. Thus recent changes have increased the value of the test from a diagnostic standpoint. Improvement in antigens has been of especial value. In performing the test with several antigens, frequently is it the case that the fortified antigen will justly indicate a positive serum that is negative or weakly positive in the other antigens. As a diagnostic means, we are better off than ever today with the Wassermann test.

In viewing the test as a guide to therapeusis, a new factor enters. It has been the teaching of syphilographers that a luetic should receive treatment with the view of making his blood negative and keeping it so. A more recent refinement of the test—the so-called ice-box method, in which fixation of complement is obtained by long exposure to ice-box temperature rather than incubation in the water bath—has shown that in a much larger percentage of cases than was formely believed, a serologic cure could not be obtained. Wile and Hazley recently report that of their treated cases serologically negative by the present accepted test, more than 50 % showed a positive serum reaction in this most sensitive test of all. But in the light of clinical experience these persistent serum reactions in intensively treated cases argue that serologic and clinical cure do not necessarily go hand in hand. Because a case is Wassermann-fast by the more delicate test does not in itself mean that he has living organisms in his body ready to flare up into activity at some later time any more than a positive tuberculin response means the presence of living tubercle bacilli in a patient who has recovered from the disease. Since we are in doubt as to the exact reacting substance in a luetic's blood, might it not be considered analogous to the persistence of immune bodies of other types, as manifested by the late Widal reaction seen months and years after prophy-

lactic typhoid inoculation or by the negative Schick test after diphtheria, or by the negative response to vaccinia virus by a patient who has had smallpox? As a guide to the progress of treatment, the more generally accepted serologic methods are of more value when used in conjunction with repeated physical examination. Under proper treatment and after disappearance of the manifestations of the disease, the blood serum gradually loses its reacting properties—a much greater proportion of the cases becoming negative and in a relatively shorter period of time than is the case in the untreated.

As one would expect, a biologic test of such complexity is exposed to error. Errors may occur in a positive or negative way. They may be grouped as avoidable or unavoidable. Unavoidable errors are first—the false positives that occur with the sera of patients suffering from yaws, nodular leprosy and in some cases of relapsing fever, malaria—during the febrile stage and trypanosomiasis. Fortunately a serum from this latitude or farther north in America reacting strongly positive under careful technic is practically pathognomonic of syphilis.

Yaws is distinguishable from syphilis only by the clinical history, symptoms and lesions. Nodular leprosy may be diagnosed by examination of material from a nodule, while a blood-picture will be sufficient to diagnose the latter three.

Another source of error is the influence alcohol has on the reaction. A strongly positive serum may react negatively after the patient has indulged in alcoholic drinks to any considerable extent. This false negative may persist for two days after indulging in one-half pint of whiskey or a quart of beer.

Avoidable errors occur especially with careless technic, unclean glassware or improperly standardized reagents. The technician should have an accurate determination of the value of all his reagents and a complete control system whenever the test is set up in order that he may never be in the dark regarding the action of any one of the constituents of the test. The only unknown quantity should be the patient's serum.

Above all other laboratory manipulations, it is imperative that this serological test be standardized if it is to be reliable. During the war and during the past year perhaps more than ever before since its incidence has there been an insistent demand for a standard method both accurate and simple. Noguchi's newer test is valuable under war conditions because of its simplicity and the fact that it utilizes human complement. Certain sera can not be adapted to the test because of low complement content and there is a slightly greater possibility of false positive reactions. The Hecht-Gradwohl method utilizes the human complement and natural anti-sheep hemolysin, is not so simple and is open to the previous objections. Neither should be used as the routine test, but are excellent controls. Kolmer and his co-workers, together with Craig and Vedder, of the Army, have gone far in the right direction towards developing a standard technic. Craig uses an accurate, present-day working method which is in use in the majority of the large army laboratories. Kolmer and his staff of workers have done an enormous volume of fundamental research into the various phases of the question and these researches have laid down a basis upon which a standard method may be formulated. This standard method, according to them, should be as near specific as practicable; as sensitive as is permissible with specificity; should show uniformity of results; should be a quantitative reaction to show the influence of treatment; and should be both economical and simple. Their standardization studies are still in a process of publication.

It does not seem unfair to state that the Wassermann reaction is one of the most accurate of routine clinical laboratory tests performed today when properly controlled and performed carefully under sufficient standardization of reagents. Along with physical examination it is one of the greatest diagnostic aids. It may be adapted to show the influence of treatment. Greater uniformity of results will come with the adoption of a more nearly standard method.

GASTRO - INTESTINAL DISTURBANCES SEEN ON THE WESTERN FRONT*

By E. R. Gordon, M.D.,
McComb, Miss.

The field surgeon in the American front lines had many things to perplex him, both as to the best disposition of his wounded and the handling of the sick among his troops under the many different conditions in which he was placed, for he was constantly confronted with the problem of ambulances to convey the wounded to the rear and the question of keeping as many men in the firing line as possible, as counter attacks by the enemy had to be considered at all times. He also had at all times to be careful not to make the mistake of keeping men in the line who should go to the hospital.

While the American soldier came nearer staying by his officers and comrades, sick or well, cold or hot, hungry or fed, than any of the entente or central allies, there was of course the sick call fiend, who, like the poor, was "always with you, who, if you eliminated one ailment, never found difficulty in getting on the sick list with something else. The observations in this paper, however, were taken from an outfit of infantry and machine gun men who had been for the most part in the front lines since the fall of 1917. The non-fighting types of these outfits had been largely eliminated by the time this present paper was begun.

I am taking the subject of gastro-intestinal diseases as the cases presented visible symptoms, making malingering among them very difficult. Though not able to follow up these cases personally with a microscope, I was in a position to get reports enough from the laboratory at least to confirm my opinions.

For the sake of description I shall divide my subject into two main classes: infectious and non-infectious gastro-intestinal diseases. Of the infectious we had two chief types: the kind produced by colon bacilli and the type produced by the bacillus Aerogenes, a Gram-positive organism. Of the non-infectious type I shall first consider nervous gastro-enteritis; second, acute catarrhal ileo-colitis (from exposure); third, gas gastro-enteritis; and fourth, dietetic enteritis.

Ileo-colitis produced by the colon bacillus, or the first class of the infectious type, needs little discussion, the colon bacillus having a prosperous home in nearly all the water supply of France. As we all know, prophylaxis was an easy matter when we had water enough to fill lyster bags and treat with chlorinated lime. The second class of the infectious type, caused by the bacillus Aerogenes, was no great problem, for the germ producing it is chiefly active in the presence of carbohydrates in the intestinal tract, which was very rare in the front line. The only cases in my outfit occurred only once in a while when our men would get chocolate enough from home to give them a disturbance of this nature. It may have been more frequent in the S. O. S.

Prophylactic method easily controlled all types of infectious intestinal diseases. The efficiency of prophylaxis was very clearly demonstrated in the region of Chateau-Thiery after the drive on the Orque River August 1. We were in camp in a dense wood to prevent German observation and were in and around the former German camp where the hardest fighting had taken place. We were in a neighborhood where times were too hot for proper camp sanitation. Dead horses and disagreeable odors arose from every side. The picket lines for our horses had to be maintained too close to our kitchen in order to be under cover to avoid the watchful eye of Jerry (the German aviator). The flies were so thick that the first day found us hardly able to stomach the food we could get. The second day we were willing to eat with some one shooing the flies away. The third day we were clamoring for our chow, flies or what not. Yet in this region we had very little sickness. I attribute our good fortune to the fact that we had plenty of water to use in our lyster bags and chlorinated lime, and also to the fact that our food was chiefly canned beef, freshly opened, served with bread whose crust was so thick that no known germ nor insect could penetrate or find a foothold on it.

On the days that our rations were plen-

*Read by title before the Mississippi State Medical Association, Fifty-Second Annual Meeting, Hattiesburg, May 13, 1919.

tiful we got our "corn willie" straight; when scarce, we had it in soup in order that the cook might be able to add enough water to make it go around; and there is where our Medical Department showed its efficiency, for it insisted upon boiled water being used for the soup's dilution. But with all these disadvantages our men were happy and healthy in this camp as long as "Fritz" behaved.

I shall consider just a few of the non-infectious types of gastro-intestinal troubles which came under my observation in the Argonne Forest, for there the conditions differed from the other sectors, as it was during the month of October, with much colder weather than we had had in Chateau-Thiery or at the St. Mihiel sector. Our lines were behind a series of wooded hills; our food was cooked behind a high hill back of us, under the supervision of my sergeant, an intelligent graduate in pharmacy, who was very careful in the handling and supervision and preparation of the food. Water being too scarce to use in lyster bags, the men were supplied with plenty of coffee, and every precaution was used to keep them from drinking unboiled water. Other rules of camp hygiene were carefully observed, but our cases of intestinal diseases increased to such an extent that to have sent all the real sick ones to the hospital would have dangerously weakened our lines. Reports from the cases sent to the hospital showed that nearly all those sent back were not of germ origin. The first type encountered was a nervous gastro-enteritis which, while properly not having an authentic place in many medical works, certainly had its place "over there." I attribute its occurrence to the fact that our men were under a nervous strain day and night; we were in close proximity to the enemy, who were standing firmly, shelling us from one to three hours every day, and pulling off a counter attack within our hearing nearly every night.

The cases coming under my notice were men who were not exposed to gas attacks, yet they were coming to me in frequent numbers unable to retain their food, and with a violent dysentery without an elevation of temperature. The second type, which I give as a gastro-enteritis, was caused by the inhalation of gas from the high explosive shells. A dozen men would sometimes be effected by the explosion of one big shell. They would begin to vomit immediately after its explosion and also in a short time would have a violent enteritis. These men did not have the symptoms of poisoning from gas shells, except the weakness. The nausea in these cases was frequently the worst symptom. Often for forty-eight hours they could not retain anything. Most of these cases recovered without going to the hospital by merely relieving them from duty for two or three days, which ameliorated the worst symptoms. If the history of vomiting in a case continued he was placed under the observation of a first-aid man to verify his statement.

Of the third type, the acute catarrhal gastro-enteritis was usually found to be caused by a sudden chilling of the intestines. These cases occurred in our men who were doing duty in the front lines. After they would lie on their abdomens in the cold, wet holes which they had dug for protection from the machine gun fire, they would first suffer with a violent pain in the abdomen similating appendicitis. This pain and colic was followed by a bloody dysentery for several days. These cases resembled those in civil life which we see where people keep under the direct draft of an electric fan on the abdomen, or expose themselves to sudden changes of temperature.

The dietetic from of gastro-enteritis we found was an acidosis produced by lack of variety of food. For a long time these cases were observed in all sectors. They soon recovered if a change of diet could be afforded them. In the treatment of all non-infectious types we get the best results by using the following rule: The nervous type were sent back to our wagon trains for a few days if possible and returned well at the end of that time. The gas gastro-enteritis were relieved from duty and placed on a liquid diet for two days and then given light duty, and all symptoms would soon disappear except the vomiting, which would occur at different times—for as long as ten days sometimes.

The acute catarrhal ileo-colitis from exposure recovered rapidly when we could get them in a warm, dry place for a few days. The dietetic gastro-enteritis had to be given a change of diet.

The chief medicine relied upon was our

old reliable castor oil and Dover's powder. Castor oil was in such demand that a surgeon in an infantry outfit in that sector was said to have stolen a whole barrel of it from the Aviation Department, and when charges were made against him, made the defense that he wanted to keep his men in the front lines and the aviators out of Paris.

We must conclude that the absence of typhoid fever and other infectious types of the intestinal diseases showed the splendid work of preventive medicine under the worst condition, and that the non-infectious types are a natural sequence of army life under conditions in which our men were placed.

AUTHORS' ABSTRACTS

Medicine

Epidemic Encephalitis with Stupor. Foster Kennedy, New York, N. Y. Medical Record, Vol. 95, No. 16, April 19, 1919, p. 631.

A detailed account is given of the symptomatology of four cases of the disease which has been called encephalitis lethargica. This condition is clearly associated with the recent world-wide wave of influenza; and its clinical manifestations are such as might be expected to follow its constant morbid anatomy, i. e., a hemorrhagic inflammation in the midbrain, especially in the subthalmic area and around the Sylvian aqueduct. "The clinical picture in the main is that of an acute illness ushered in by a moderate pyrexia, and usually associated with headache, vertigo, diplopia and progressive emotional stupor; ingravescent palsies of the cranial nerves, especially those of the midbrain and affecting ocular movements; catatonia with increase in tendon tone, tremor in the limbs and variable evidences of damage done to the long motor tracts."

The author dissents vigorously from the opinion held by some observers that this disease is to be regarded as identical with poliomyelitis. The symptoms of epidemic encephalitis are unique and its bacterial cause will be found to be unique also.

Acute Adrenal Insufficiency. William Boyd, Winnipeg, Canada. The Journal of Laboratory and Clinical Medicine, Vol. 4, No. 3, December, 1918, p. 133.

Acute adrenal insufficiency is a condition which has been described mainly by French authors. Four types are described: the acute abdominal, the cerebral, the asthenic, and a form in which sudden death occurs without premonitory symptoms. An acute hemorrhagic lesion of the adrenals has been present in most cases, but in a few the lesion was chronic.

The present case was a man aged 38, who suddenly developed symptoms pointing to cerebral hemorrhage and died 12 hours later. The patient had previously been in robust health. There were no symptoms of Addison's disease. The only lesions found at autopsy were a few old tuberculous nodules in both lungs and a most extensive destruction of both adrenals by tuberculosis. The only trace of normal adrenal substance was a narrow strip of cortex on the left side.

The case at least shows that the medulla of the adrenal is not essential to life and that health may be maintained with only a fragment of cortex.

The Diagnostic Value of Lowered Bone Conduction in Syphilis. W. H. Goeckermann, R. A. Barlow and J. H. Stokes, Rochester, Minn. American Journal of Syphilis, Vol. 3, No. 2, April, 1919, p. 240.

In one hundred cases taken at random the so-called lowered bone conduction test (reduction in conduction of sound by bone as compared with otherwise normal hearing) agreed with the positive or negative diagnosis of syphilis in 67 % of the cases. In these cases syphilis was actually present in 59 %. This gives the lowered bone conduction test an efficiency of 78 % in known syphilis. The test was found especially valuable in late cutaneous and central nervous system syphilis—100 and 80 %, respectively. In lues latens it was positive in 80 %. In osseous syphilis the test seemed to be of no value. In early syphilis the results were inconclusive because of the small number of cases included in the series.

A comparison with the results of the Wassermann test considering the type of case under investigation was quite favorable for the lowered bone conduction test. In 55 syphilitic cases, the Wassermann was positive in 25, or 45.5 %. The bone conduction test was positive in 42, or 76.4 %. This result was, however, discounted by a positive lowered bone conduction test in 19 out of 39 cases, or 48.7 %, in which syphilis was absent. A compative study of the test as a factor in the diagnosis of syphilis leads to the conclusion that the test has, therefore, only a restricted value as a diagnostic aid, owing to its high factor of error.

Clinical Significance of Blood Sugar in Nephritis and Other Diseases. First Paper. John R. Williams, and Eleanor M. Humphreys, Rochester, N. Y. Archives of Internal Medicine, Vol. 23, No. 5, May 15, 1919, p. 537.

Until recent years, physicians have been compelled to rely for their clinical data on such information as can be procured by physical examination of the patient and such simple and available laboratory tests as can be expeditiously made of the urine, stools, etc. Practical methods for studying the abnormal physiology of the body or the disturbances in the chemistry of the blood which always occur in the presence of disease have been limited in number or not available. The past five years has witnessed much progress in this line of chemical physiological investigation. In this study, the authors have studied the problem of blood sugar with reference not

only to normal physiological states, but also with reference to some of the important diseases in which there is a disturbance in nutrition. A summary of the conclusions of this study is as follows:

The average blood sugar level in 113 normal individuals was 0.107 per cent., the values ranging from 0.07 to 0.14 per cent. Older writers, commonly referred to in text books, place the normal blood sugar level as high as 0.15 per cent. The blood sugar level may be slightly increased in most diseases caused by infection and in gastrointestinal disorders, but the test in such cases has but little direct value.

Blood sugar disturbance is present chiefly in diabetes and nephritis. In the early stage of nephritis, when the general metabolism of the body is but little upset, blood sugars as a rule are normal. In the last stages of nephritis, when the patient is in uremia, the blood sugar may be very high, simulating diabetes and often leading physicians to believe that that disease is a complication. In true diabetes there is a direct relationship between food intake and blood sugar level, whereas in severe nephritis no such relationship exists. The severe nephritic excreting small amounts of sugar in his urine and carrying a high blood sugar level should not be dieted for diabetes. Failure in nitrogen metabolism precedes, often by months, the rise in blood sugar so that the latter has a rather serious prognostic omen.

The Clinical Significance of Blood Sugar in Diabetes Mellitus. Second Paper. John R. Williams, and Eleanor M. Humphreys, Rochester, N. Y. Archives of Internal Medicine, Vol. 23, No. 5, May 15, 1919, p. 546.

It is in diabetes that the study of blood sugar finds its greatest usefulness. At present it is the custom of physicians to treat diabetics on the basis of urine sugar observations. The authors show in this study of 137 cases of diabetes that urine findings with reference to sugar excretion may be very misleading. A diabetic may have a very considerable failure of carbohydrate metabolism with an abnormally high blood sugar and yet be urine sugar free. This they interpret to mean that the patient is suffering from the diabetes and overtaxing the organs of sugar metabolism, yet evidence of it is lacking in the urine.

Conversely a patient may show liberal amounts of sugar in the urine with a low or slightly elevated blood sugar level. This suggests a less severe form of diabetes. Sharp distinction is drawn between blood sugar level and blood sugar threshold. The height of the blood sugar level at which appreciable amounts of sugar are excreted in the urine is considered the renal threshold. The blood sugar level in various stages of diabetes may be higher or lower than this point.

Younger diabetics as a rule have low thresholds. The threshold rises with advancing years. When diabetes is mild or quiescent, the point at which the kidneys eliminate sugar is stationary, but when the disease becomes progressive, the threshold tends to rise. Indeed, before death the blood sugar threshold may reach great heights, with little or no sugar appearing in the urine. A high renal threshold in the face of evident mild diabetes under proper dietary regulation usually indicates some complication as arterial hypertension.

In the treatment of diabetes it is desirable to maintain the blood sugar level as nearly normal as possible, even though severe restriction in diet may be necessary for this purpose, notwithstanding that the high threshold will permit of a much more liberal diet without the appearance of sugar in the urine. The writers regard with misgiving and apprehension any pain of treatment of diabetes which permits of food just short of the point of glycosuria. In other words, diabetes should be controlled on the basis of blood sugar level rather than by urine tests.

Observations on Tolerance and Rate of Utilization of Glucose in a Series of Individuals Exhibiting Various Degrees of Diabetes Mellitus. Third Paper. John R. Williams and Eleanor M. Humphreys, Rochester, N. Y. Archives of Internal Medicine, Vol. 23, No. 5, May 15, 1919, p. 559.

Single observation of the patient's blood and urine with reference to sugar metabolism are often misleading and uninforming. Oftentimes, it is quite difficult or impossible to say in a given case, on the basis of a single test, whether or not a disturbance in carbohydrate metabolism is present. The authors have applied the methods of Hamman and Janney and their co-workers to the study of borderline cases of diabetes as well as a number of clinical conditions simulating in a degree true diabetes.

This method consists of orally administering a definite amount of glucose and water to the fasting patient, taking samples of blood and urine before the ingestion of the sugar and every half hour for two hours after. In a normal individual there is a very slight rise in the beginning and a prompt decline to the normal level, whereas in those diseases in which a disturbance of carbohydrate metabolism is often present, the blood sugar curve may be quite abnormal. In hyperthyroidism there is a noticeable rise during the first half hour with a prompt recovery in the course of two hours. In renal diabetes, the blood sugar curve may be abnormally low, although much sugar may appear in the urine. In mild diabetes, where liberal amounts of food may be eaten without the appearance of glycosuria, this test will reveal a high blood sugar curve which points indubitably to diabetes. The sugar tolerance test, therefore, is particularly useful in differentiating those cases of very mild diabetes in which there are exhibited no clinical symptoms of the disorder. The various degrees of failure of carbohydrate metabolism in the more evident cases of diabetes are most strikingly shown by this method.

TROPICAL DISEASES AND PUBLIC HEALTH

ADMINISTRATIVE AND EDUCATIONAL PHASES OF THE CONTROL OF VENEREAL DISEASES*

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It is really needless to say here that the subject matter of the paper I am presenting to you pertains entirely to the control of the venereal diseases in the State of Mississippi, and embodies facts and experiences from the operation of the Bureau of Venereal Disease of the State Board of Health, established some six months ago.

In considering this subject, it is to be remembered that this Bureau is launching out upon an uncharted sea. There is no established precedent to follow. The Bureaus in New York, or Illinois, or Oregon are but a few months, or at most a few years, our senior. But regardless of even that seniority, the variety of conditions, situations and sentiments to be met necessitates that each state face its own problems and suit policies to conditions.

The problem before us may be simply stated. It is, "to reach all infected persons, to bring them to treatment, to control them until cured, to suppress prostitution (the greatest source of infection), and to educate the uninfected to a realization of the dangers and consequences of infection." The solution of this problem is as difficult as its statement is simple.

INFECTED INDIVIDUALS

In order to obtain an idea of the size and nature of an engineering project, the engineer makes a topographic survey of the territory in which he plans to work. Similarly, the health organization, in order to direct its activities to the best advantage, must make a survey of the conditions it is expected to improve. Specifically, we must know the relative infection in various parts of the state in order to use our efforts to the best advantage. This information is obtained from the monthly morbidity reports of the county health officers. Incomplete as these reports are as regards the venereal diseases, the information they make available is of immense importance.

Twenty-eight thousand and ninety-two cases of venereal diseases were reported to the State Board of Health during 1918. This number stands third after malaria and measles, of which latter there was an epidemic early in 1918. As prevalent as pneumonia was during and following the influenza epidemic, it was nearly two thousand cases short of the number of reported cases of venereal diseases. The reported venereal diseases exceed by several thousand cases the combined morbidity of pellagra, tuberculosis, chickenpox, smallpox, diphtheria, cancer, scarlet fever, meningitis, poliomyelitis and rabies. Ten commonly prevalent diseases, at least eight of which are communicable, exceeded in number by the reported cases of two of the most loathsome diseases known! And you gentlemen are in a position to know what percentage of the cases were reported. That is a general view of the problem!

To a group of men such as is gathered here, general statistics of communicable diseases have a special significance. You are in a position to know the economic waste our industrial concerns and agricultural sections suffer because of the ineffectiveness of labor brought about by venereal infection, recent or remote. And you are most favorably situated to note the direct sequence of infections, bridging the most profound social chasms. You know, from professional experience, the few short steps required to carry infection directly from the lowest Negro dive into the most respectable family in the community. A moment's consideration will impress any of you with the constant menace to the health of babies and innocent children, and even adults, through unknown nurses and household servants.

*Read by title before the Mississippi State Medical Association, Hattiesburg, Miss., May 13-14, 1919.

Who cooked the meals you have eaten since leaving home? Who nurses your babies or your brother's babies or your patients' babies?

Venereal disease locally is a race problem, but even so it affects the white race all the same.

STATE LAWS

However, such figures as those quoted above are valueless in the more definite problem of bringing the infected individual to treatment. This is obvious.

In dealing with the individual, we must have detailed information while the infection exists. This information can come only from reports of individual cases. In order to obtain this information, the State Board of Health passed regulations in March, 1918, requiring that cases of venereal disease be reported as follows:

Section 1.—Venereal Diseases to be Reported. It shall be the duty of every licensed physician, of every superintendent or manager of hospital or dispensary, and of every person who gives treatment for venereal diseases, to mail to the State Board of Health, at Jackson, a card supplied by said Board, stating the age, sex, color, marital conditions and occupations of such diseased person, the nature and previous duration of such disease and its probable origin, and such other information as may be required, said card to be mailed within three days after the first examination of such diseased person; provided that, except as hereinafter required, the name and address of such person shall not be reported to the State Board of Health.

In order to maintain the principles of the medical profession, these requirements were qualified as follows:

Such reports are to remain confidential, and are at all times inacessible to the public. Cases are to be reported by number only, the number being the corresponding serial number of the venereal cases under the physician's treatment. Only in the case of a known prostitute is the name to appear on the report.

REPORTING OF CASES

I believe that a misunderstanding concerning the details of these individual reports is the cause for the disappointing response from the physicians of the State to this phase of the work. During March, 1919, 2,117 cases of venereal disease were reported through the regular channels. Three hundred and nineteen cases, not more than 15 %, were reported in detail.

Six hundred and thirty-eight Mississippi physicians have signed an agreement to report venereal disease cases under their treatment. To date two hundred and one have reported from one to twenty-five cases.

These reports inform us of the cases under treatment. There is no doubt in my mind, and I am sure most of you will agree, that the greater percentage of the cases of venereal infection do not come to the attention of a physician. By far the greater number attempt self-treatment, or seek the advice of a druggist, or depend upon patent medicines or "herb doctors."

As an illustration, I may cite the developments at Columbia, where we have established a free venereal clinic. Before March 15 two physicians of Marion County reported three cases of venereal disease. That Clinic has been in operation about six weeks and nearly two hundred fifty patients are under treatment. I suppose more than three cases were receiving treatment from physicians, but I am certain that the physicians of that County were not treating two hundred fifty cases.

DRUGGISTS' REPORTS

Here is the most serious phase of our problem. We must reach, in some way, these outlaw cases. Because of the organization of the pharmacists, it has been possible to regulate, to some extent, the sale of remedies for venereal diseases.

I take it that it is common knowledge that druggists are required to report weekly all sales of patent and compounded remedies for venereal diseases when purchased without a physician's prescription. Naturally, this rule does not operate perfectly. The larger the machine, the greater its imperfections. But we are getting results. Twenty-five and two-tenths per cent. of the drug store proprietors of the State have pledged themselves to discontinue the sale of venereal remedies except upon a physician's prescription. Twenty-six and one-tenth per cent. report their sales with varying degrees of regularity. The exact status of the remainder, 48.7 %, is unknown.

An unfortunate condition connected with this phase of our work is the fact that a large number of rural merchants and nearly all plantation commissaries carry in stock a supply of patent venereal remedies, sold as specifics and as "blood medicines." The simple faith placed in these concoctions by the average person,

many of whom should know better, is appalling. We have no way of locating the proprietors of stores which handle such remedies, and to that extent are our efforts failing of success.

It has been our experience that the matter of "herb-doctors" and traveling quacks is of more than trivial importance. We have on record the cases of eight such men who were carrying on their profession in this State. I suppose this audience could furnish me with the names of as many more.

The cases which apply to the druggist who does not report, which treat themselves with patent remedies from mercantile stores, and those treated by the "root-doctors" are lost to us and to you, at least for the present.

It may now be pertinent to inquire concerning the value of these reports which are required of physicians. Candidly, they are of little value except for statistical purposes, so long as the patient continues treatment. But the moment the patient fails to return at the proper time they are invaluable. When such delinquent patients are reported to the Bureau, by name and number this time, we have all other data required to locate the patient (when the report has been made in full) if he is still in that locality.

To you who are skeptical I may state that we are not always successful in locating such delinquent patients and causing their return. Frequently, they have selected another physician; and sometimes no trace of them can be found. But we do get some.

LETTERS TO DRUG PURCHASERS

If the reports from physicians are valueless, why are reports required from druggists? For this reason! Every patron of a drug store is a prospective patient for a physician. And if I am successful he will become the patient of a physician.

Between January 1 and May 10, 1,650 letters were sent to persons reported as purchasers of venereal remedies. Four hundred and fifty of these letters have been returned unclaimed, indicating that a false name or address was given at the time of purchase. Nothing whatever has been heard of over 1,000 of these letters, but it may be assumed that an appreciable percentage of them have followed the advice given. And approximately 100 have replied and the greater proportion have promised to place themselves in the care of a physician.

In my letter to purchasers of venereal remedies I urge them to place themselves in the care of a physician at once. Is it not a matter of collective interest to the physicians of any community or section that every purchaser of a venereal remedy be reported? I think it is. And I think any county medical society would be benefiting itself by reporting to the Bureau of Venereal Disease the names of any mercantile or drug stores which carry a line of venereal remedies, but do not report sales. Competition may be the life of trade in some fields, but co-operation, in this case, can be made to develop your patronage and my work!

I believe in co-operation. I think it is a prime law of Nature, regardless of certain Teutonic philosophy concerning the "survival of the fittest." The honest physician and the law-abiding druggist can get together with profit to both. You owe it to him, after what I have told you. On the other hand, the outlaw druggist is cutting your throats and stealing your patrons, at the expense and to the loss of the druggist who conforms to law. How long are the county organizations going to permit this? Can not we combine in this matter? There are vast possibilities before us if we will but take advantage of the opportunities.

In a number of states it is unlawful to carry in stock and offer for sale patent venereal remedies or so-called remedies. This is one solution of that phase of the problem, and may ultimately be necessary in this State. That is a question of future policy not appropriate for consideration here.

I would like to see the day when venereal disease will be as rare in this country as leprosy or plague is today. I trust there will come a time when our present extent of infection will be considered impossible and as mythical as the Mosaic plagues of Exodus. Of course, we shall have passed into some future state before the first-named condition is attained; and long before the latter hope is realized, our tombstones will have crumbled to dust.

But, if there ever will be such a day, we must start now and educate the rising

generation. A movement of the kind we are nursing requires time to gain its effect. We must allow time for the old generation, with its conservatism, to die off. We know that the human body is not healthy unless there is a normal rate of change, in which new cells take the place of dead cells which they have pushed off. So it is in the progress of society. A certain rate is progress; a slower rate is stagnation; and a more rapid rate is—what? A tumor? Yes, a revolution. It may be temporary; it may be permanent.

WORK AMONG STUDENTS

I think a social revolution, as regards venereal disease, is rather remote. But, for all that, we are starting with the new cells, the young generation.

Up to April 30, 3,364 white school boys of 13 years and over had been reached and informed in an austere and solemn manner regarding the proper care and control of their sexual functions; 3,704 Negro students had similar facts given them; 14,400 adults of both races were spoken to in mass meetings, etc. During the month of April many of the high school girls of the State were reached by the Y. W. C. A. lectures. We are now planning courses at the summer normal schools and expect to take up the situation in the lumber camps of the southern part of the State. These activities, with our literature and motion picture film and our newspaper articles, constitute our educational program. I have omitted details which are of little interest compared with other papers still to be read.

Before closing I wish to emphasize a fact which we all realize subconsciously.

PHYSICIANS' RESPONSIBILITY

This body is composed of the most progressive members of the medical profession of this State. You are considered the leading practitioners in your respective communities. Do you realize the responsibility this implies? Is that leadership to stand for progress or conservatism? Leadership implies followers. If the most progressive physicians report their cases of venereal disease, a majority of all physicians will soon follow suit. And when a majority realizes the value of reports, and the loss in effectiveness caused by the failure of the small minority to report, that minority can be forced to report. The majority dictates, by precept or example, and the minority obeys, with good grace or otherwise.

If this Association will go on record today in full support, active or moral, of the work of the Bureau of Venereal Disease of the State Board of Health, the result will soon be visible. I hope you will.

If you do not, you may postpone success a while, thereby missing the opportunity of taking part in one of the greatest organized fights against disease the civilized world has seen. But eventually the new cells will preponderate, the old ones will be shed, and some of you may live to that unhappy age when you will be obliterated, despite your objections, in the dust of the progress of humanity.

AUTHORS' ABSTRACTS

Tropical Diseases and Public Health

Medical Argument Against Night Work, Especially for Women Employees. Emery R. Hayhurst, Columbus, Ohio. American Journal of Public Health, Vol. 9, No. 5, May, 1919, p. 367.

The writer is not in favor of night work for anybody. It is unnatural for most forms of life to work at night and attempt to sleep in the day. The tonic effects of exercise in daylight are lost. There are very few, if any, trades or callings which demand routine night work.

Fatigue is the health menace concerned—accumulating fatigue which is the worst form. It is due to a combination of several factors: (1) disturbance of sleep because of daytime noise, hotter weather and the periodical changes in shifts brought about in order to make the fairness of night work an equal burden to all employes; (2) rest marred by additional home daytime duties, especially for women; (3) recreation not timed with that of others so that association with fellow-men, maintenance of interest (a chief block against fatigue), and finally morale are stunted; (4) deranged digestion—the effects of shift changes, the reversal of periods for light and heavy meals, and the tendency to lunch with others during the day; and (5) strain usually greater because night shifts are longer, illumination is rarely perfect, and past-midnight hours are those of the least functional activity in the human body—some call it agony in keeping awake these hours. Fear is a state inimical to health and for many women and youths this is a feature in getting to and from night work.

The British found that first-aid dressings on the night shift were 508 per 1,000 per month compared to 292 on the day shift. Germans reported illness among night workers constantly higher than for day workers.

The author believes that women should work. Whether a given woman should do factory work is a social problem rather than a medical one for the woman. It is more a medical one than a social one for the woman's child. Twenty-three per cent. of all deaths occur before five years of

age, and 75 % of working women's deaths occur before they are 45 years of age and are due to six causes, all reducible: consumption, pneumonia, accidents, typhoid fever, poisoning, and suicide. The figure for men is 60 %. In thirty-six leading American occupations for women, tuberculosis was the first cause of death in 27.

"Night work is a menace to state and national vitality." Great emergency is the only justification for its existence.

The Importance of Child Hygiene in National Reconstruction. Richard M. Smith, Boston, Mass. Modern Medicine, Vol. 1, No. 1, May, 1919, p. 73.

Of all the phases of conservation which have come out of the war, none is more important than the conservation of child life. Everything must be done to protect the rising generation.

A complete conception of child hygiene must include prenatal care and supervision of the child from birth through the school age.

We must bear in mind economic conditions as they affect intimately the health of the children.

There must be co-operation between public and private agencies working toward the same end in order that there may be greater accomplishment. The two forces must especially work together in educating the public and the physicians.

Prenatal care must be given in order that the mother shall be in a condition to nurse her child and in order that the child may be born healthy. The mother must be given proper care at the time of her confinement in order that her life may be spared and that her infant may not be sacrificed.

During the first year of life breast feeding is the most important safeguard to the child's health. He must be given also proper surroundings and adequate care of his body.

During the first five years, when growth and development of mind and body are so rapid, he must be protected, so far as possible, from disease and from development of deformities. As a result of improper feeding, rickets, postural changes, particularly round shoulders, prominent abdomen, etc., develop. Enlarged adenoids and carious teeth are very common in this period and must be removed or corrected. If proper attention is given to food, posture, teeth and adenoids, most of the deformities of early childhood will be prevented and men of twenty will not be turned down for military service in such large proportion as was the case during the last draft.

The school child has been studied for a long time. We know about the diseases and deformities of this period, and must institute means to prevent and treat them. It is our duty to see that the school child is given instruction in personal hygiene and the methods of keeping well.

We must also see that the child going into industry is prepared to take up the work that he is called upon to do.

It is our duty to the child to assure the best possible physical and economic surroundings, to furnish proper food, to secure protection from disease, and to provide every means for growth and development of a healthy and perfect body.

The Health Officer and the Enforcement of the Law. Charles V. Craster, Newark, N. J. American Journal of Public Health, Vol. 9, No. 5, May, 1919, p. 362.

He points out the many useless and unenforcible health laws on the statute books of many states. Most numerous in this respect are the regulations pertaining to sanitary nuisances, inasmuch as the laws usually are antiquated and should only be used when the nuisance actually is a menace to health.

Plumbing and drainage laws are of similar nature, and while they should be enforced entirely in new buildings, much leaway should be given in old ones. He believes that building departments should be under the health department supervision, as they are the most vitally concerned in that work.

The most important function of a health department is the control of contagious diseases Stress is laid upon the value of the accurate reporting of cases and also of births and deaths to aid in disease control and child hygiene work.

Food inspection is important, especially of milk, as that is the staple food for infants, whose stomachs need, and must have, the most wholesome food. Extensive scoring of dairies and creameries and frequent bacterial tests help greatly in this work.

The need for more sanatorium accommodations for tuberculosis patients is considered. The close connection between this disease and poverty also indicates the need of financial assistance for families, especially when the main support goes to a sanatorium. In this respect, and many others, the work of health departments is growing to be more and more of a social nature. These departments must and will be the social advisory centers of every community.

State legislation is urged for the following:

1. State health service similar to U. S. Public Health Service.
2. Payment by the state of part of health officers' salaries.
3. State poor relief or old age pension plan.
4. State insurance against tuberculosis disability.
5. State control of tuberculosis sanatoria with establishment of state preventoria for children.
6. State milk ordinance.
7. A plumbing code for the state.
8. State control of animals slaughtered for food on farms.

SURGERY

RAILWAY, INDUSTRIAL, GYNECOLOGICAL, OBSTETRICAL AND UROLOGICAL

THE DIAGNOSIS OF TUBERCULOSIS OF THE KIDNEY

By Daniel N. Eisendrath, A.B., M.D.,
Clinical Professor of Surgery, Rush Medical College; Attending Surgeon, Michael Reese and Cook County Hospitals,
Chicago, Ill.

The recognition of this condition would be a comparatively easy task were it not for the fact that it masquerades under such a variety of clinical pictures that the kidney is not always thought of as the cause of the symptoms. This is due in no small measure to the frequency with which the chief complaint is of bladder distress, so that from 45 to 60 per cent. of the cases are treated for cystitis for months to years before the underlying condition is recognized.

Yet no other surgical lesion of the kidney will yield so satisfactory end-results if a diagnosis is made at a reasonably early period, i. e., before invasion of, or toxic changes have taken place in, the opposite kidney. Clinically, one encounters the disease in one of the following combinations:

1. Those cases in which the first symptom is more or less severe hematuria;

2. Those in which the symptoms of cystitis predominate;

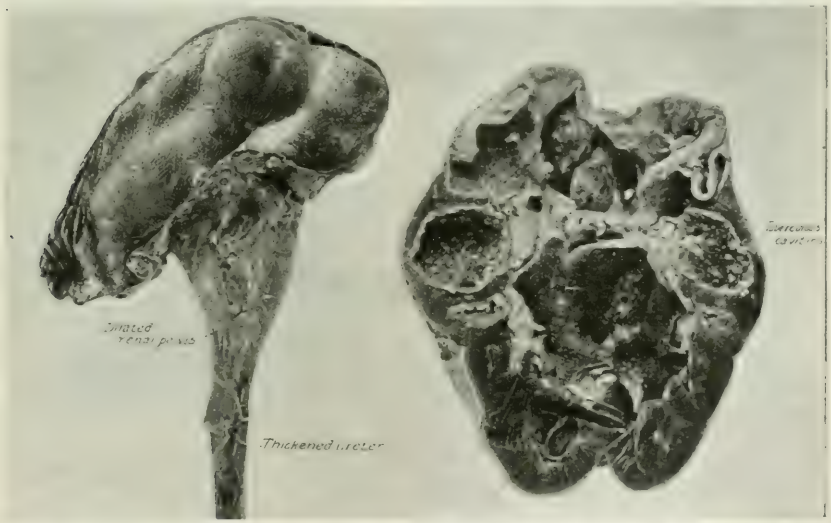


Fig. 1.—External appearance (on left) and sectional view (on right) of typical example of dilatation of the ureter and renal pelvis secondary to a tuberculous stricture of the ureter in a case of tuberculosis of the kidney. (Case No. 183.)

3. Those in which symptoms exist which point directly to the kidney as the seat of trouble or there is a combination of renal and vesical symptoms;

4. Those with an apparently acute onset resembling through the presence of chills, fever and the local evidences, an ordinary pyogenic renal infection;

5. The so-called "silent" cases where there is loss of weight and strength, indefinite lumbar or abdominal pain and the presence usually of a tumor in the kidney region (cases of closed pyonephrosis); and

6. Those in which the appearance of a perinephritic abscess is the first symptom.

Some at least of the various clinical pictures I have just enumerated will be better understood by citing some typical examples from my case records.

GROUP I—HEMATURIA THE INITIAL SYMPTOM

Case 183.—Girl, 16 years old. Onset of the present illness began at age of five with a severe hematuria lasting one week and recurring two years later with absence of symptoms in the interval. Bladder symptoms were not complained of until she was ten years old. At that time increased frequency and painful urination became quite marked and at times the urine was observed to contain blood. The symptoms of cystitis during the two years (14 to 16) before being sent to the hospital were very distressing and were accompanied by right-sided ureteral colics. When I first examined her the kidneys were not palpable nor tender. The bladder was the seat of such an advanced tuberculous cystitis that identification of which kidney was the source of the infection was carried out with great difficulty. Tubercle bacilli were present in the urine from the right ureter and at operation this kidney was found to be the seat of a marked tuberculous infection with dilatation of the renal pelvis (Fig. 1).

Remarks.—There are two features of interest in this case: first, the age of the patient; and second, the onset with a severe hematuria.

There is some difference of opinion as to whether the symptoms of renal tuberculosis are the same in children as in adults. According to some of the French urologists, either incontinence of urine or the appearance of a perinephritic abscess are the most typical initial symptoms in children. This has not been the experience of other writers nor coincided with my own observations, according to which there is no material difference in the mode of onset in children and adults.

The second interesting feature is the initial hematuria. This, whether in a child or an adult, is an indication for a thorough examination of the urinary tract to ascertain its origin. The frequency with which a hematuria occurs as the first symptom of renal tuberculosis varies greatly. According to some observers the history revealed it as the initial symptom in about 20 per cent. of the cases, while according to the experience of the majority of writers who have analyzed their cases, hematuria is an initial symptom in not more than 5 per cent.

The advanced degree of invasion of the kidney (Fig. 1) and of the bladder clearly demonstrate the necessity of an early diagnosis which should have been made at the age of ten when the cystitis symptoms became so marked, even if the two attacks of hematuria at an earlier age had been overlooked.

The following case shows that in an adult the development of a similar sequence of symptoms took place with far greater rapidity:

Fig. 2.—Specimen of kidney from Case No. 1293 showing early stage of tuberculosis. Note how one large cavity occupies the greater portion of the upper pole. There are many miliary tubercles to be seen on the pelvic mucosa and there is great thickening of the peripelvic tissues, which favors obstruction to the outflow of the infected urine.

Case 1293.—Female, aged 35. Sudden onset

two years before with severe hematuria which recurred one year later, followed by symptoms which caused her physician to treat her for cystitis without benefit for nearly six months before she was seen by the writer. These symptoms were of increased frequency and painful urination. There was much pus in the urine. During the few months before being seen by the writer the symptoms of inability to control the urine, especially at night, had become quite a marked feature. She had been given a stock vaccine of B. coli without any benefit and it was this failure to respond to vesical lavage, etc., which first caused her physician to ask for a cystoscopic examination.

Upon admission to my service, there was tenderness and rigidity over the left kidney, but no apparent enlargement of that region. Cystoscopy and ureteral catheterization revealed a much reddened, edematous and retracted (golf hole) left ureteral orifice (Fig. 8) with several small ulcers near it. At operation a typical tuberculous infection of the left kidney was found, evidently of old standing (Fig. 2).

Remarks.—The most instructive feature of this case is that the initial hematuria was followed within a year by symptoms which pointed to the bladder as the seat of trouble. This, as the cases quoted under Group II will show, is such a common clinical observation that every practitioner should make it a rule to have a thorough examination of the entire urinary tract made whenever a patient either does not improve or even becomes worse after the employment of routine methods of treating a cystitis. The initial hematuria alone called for a study as to its source. Valuable time was lost by waiting, because experience has shown that if we postpone making a diagnosis too long in renal tuberculosis the infection travels down the ureter of the first invaded kidney, and after involving the bladder will, by ascending invasion, infect the opposite healthy kidney within a very few years.

I always attempt, in speaking on this subject before medical societies, to emphasize the fact *that any case of cystitis which does not rapidly yield to treatment or recurs at intervals without apparent cause, demands a thorough urologic study.*

GROUP II—PREDOMINANCE OF CYSTITIS SYMPTOMS

Case 1226.—Male, aged 28, began to have painful and frequent urination four years before. He was treated for gonorrheal prostatitis and cystitis for six months. At this time he had lost much in weight and the increased desire to urinate became marked both by day and at night. The act of urination was accompanied and followed by severe pain and toward the end of urination some blood was passed (terminal hematuria). The urine was examined for tubercle bacilli and many were found and a diagnosis of tuberculous cystitis was made. Apparently the thought that the bladder symptoms were the "smoke" and that the cause or "fire" was higher up in the urinary tract, did not occur to those who were in charge of the case. He improved somewhat after the use of iodoform emulsion for the bladder and administration of tuberculin, gaining considerably in weight, and the bladder symptoms almost disappeared. Soon, however, the increased frequency and painful urination and pyuria recurred.

My first cystoscopic examination revealed at once that the left ureteral orifice and the corresponding half of the bladder were the seat of typical tuberculous ulcerations (Fig. 8) and that the right kidney had not yet been involved. Removal of the affected left kidney was consented to

Fig. 3.—End stage of tuberculosis of the kidney. Note how entire parenchyma is replaced by a series of cavities which were filled with caseous detritus. (Case No. 1226.)

and revealed a most advanced tuberculous involvement (Fig. 3). His bladder symptoms disappeared within a few months after the removal of this kidney and he has had no further trouble during the past four years since the operation.

Remarks.—Although gonorrheal and tuberculous infection can coexist, stained specimens of the pus will soon eliminate the former form of infection. In general one must always think of a tuberculosis of the kidney when one fails to find the ordinary pyogenic organisms in the urine.

There should never be any difference of opinion in the treatment of a tuberculosis of the kidney if (a) the opposite one is

not involved, and (b) if there are no other foci (bones, lungs and peritoneum).

The apparent improvement in symptoms after local and tuberculin treatment is a common observation in the practice of the few who still counsel non-operative treatment of renal tuberculosis. This is due to the temporary cessation of the escape of pus from the renal pelvis as the result of closure of the ureter, an observation often made in taking the history of cases not subjected to medical treatment. The destruction of the kidney as this specimen shows (Fig. 3) goes on relentlessly despite the periods of apparent amelioration of symptoms. The kidney is completely destroyed — a process known as auto-

Had a cystoscopic examination been made even six months after the onset of the bladder symptoms, the patient would have been spared much unnecessary suffering.

Case 588.—A boy of 19 was sent from a neighboring state on account of inability to control his urine, which had existed for several months. Upon careful questioning I found that the incontinence had been preceded six months before by increased desire to urinate and that this symptom had been rapidly followed by considerable pain during the act. The incontinence had only become the most prominent complaint for several months before he was referred to me. The urine at our first examination was found to contain much pus and many tubercle bacilli. Examination of the bladder and catheterization of the ureters in order to determine whether one or both kidneys were involved, was very difficult owing to the great irritability of the bladder and the

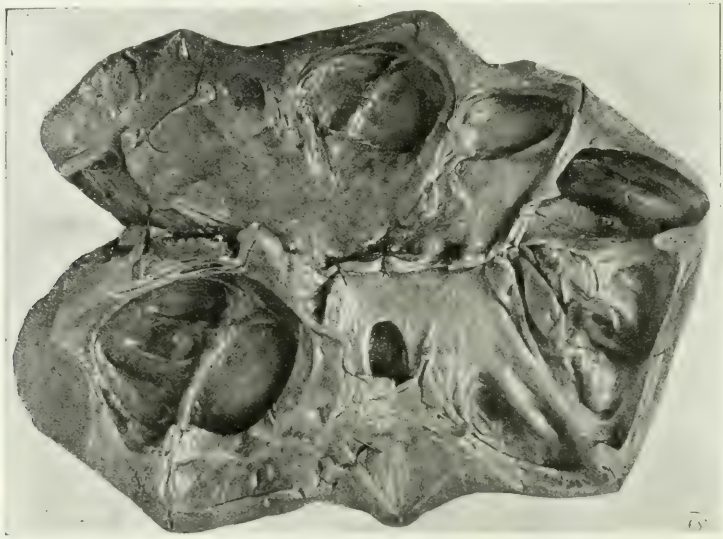


Fig. 4.—Tuberculosis hydronephrosis due to early closure of ureter by stricture. Condition was complicated by a very extensive perinephritic abscess. (Case No. 710.) See text.

nephrectomy—but its presence is nevertheless a menace to the individual on account of the presence of active organisms which may at any time give rise to a miliary tuberculosis, and also owing to its toxic influence on the opposite kidney causing interstitial changes which sooner or later lead to an unexpected uremia.

advanced nature of the tuberculous changes in the bladder mucosa. The bladder could only retain three ounces of fluid and this for such a short period that general anesthesia was required for the examination. Extensive ulcerative changes were found all over the bladder, but catheterization of the left ureter revealed many pus cells and tubercle bacilli and normal urine from the right kidney. Left nephrectomy was done, the kidney showing widespread but com-

paratively early tuberculous changes. His cystitis symptoms continued for nearly a year despite the removal of the kidney, but finally yielded to a form of treatment of post-operative tuberculous cystitis which we will report shortly elsewhere.

Remarks.—In this young man the chief complaint was incontinence, but was preceded by the increased frequency and painful urination found in 45 to 60 per cent. of cases of renal tuberculosis.

GROUP III—PRINCIPAL SYMPTOM: PAIN OVER KIDNEY

Case 710.—Male, aged 23, had a sudden onset six months before with pain over the left kidney and appendiceal region. Later he began to have bladder symptoms, i. e., increased frequency and painful urination accompanied by pyuria. When first seen by me at a hospital in an adjacent state, there were all the evidences of a left-sided perinephritic abscess. Cystoscopy revealed typical tuberculous ulcerations around the left ureteral orifice. At operation in addition to a large perinephritic abscess, the kidney was found converted into a large thin-walled sac (Fig. 4) filled with pus, on the outer surface of which there were a number of typical tuberculous nodules.

Remarks.—In this case the symptoms of pain and of infection around the kidney predominated over those of the bladder, the changes in which were very slight. Not infrequently we find that pain over the kidney or recurrent ureteral colics are the most prominent symptoms, this class or group of cases being next in frequency to those in which the symptoms of cystitis predominate. The conversion of the kidney into a large hydronephrotic sac (Fig. 4) as in this case is usually the result of the obliteration of the ureter close to the renal pelvis as the result of a stricture. In those cases of renal tuberculosis in which renal symptoms predominate we can only make a diagnosis by a process of exclusion, i. e., by a thorough examination of the urinary tract, including x-ray, pyelography, cystoscopy, ureteral catheterization and bacteriological study of the urine in order to eliminate other renal conditions which can cause similar clinical pictures.

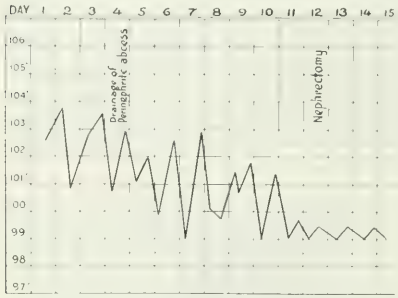
GROUP IV—MIXED INFECTION CASES

Case 226.—Male, aged 20, had a sudden onset three weeks before admission with severe pain over the left kidney, radiating toward the bladder accompanied by high fever which had continued. I found marked tenderness and rigidity over the left kidney. The temperature was 104° F. and the white blood count 20,500. On account of the sudden onset and other acute inflammatory symptoms we made a diagnosis of acute hematogenous (pyogenic) renal infection. At operation a large perinephritic abscess was found around the lower pole of the kidney. Much to our surprise both the staphylococcus aureus and tubercle bacillus were found in the pus. Bladder examination a few days later showed that there were no changes. On account of the persistence of the fever (Fig. 6) and the presence of a tuberculosis, we removed the kidney (Fig. 5) a week later and found a single focus at the lower pole.

Fig. 5.—Kidney from Case No. 226, showing tuberculous cavity at lower pole complicated by extensive perinephritic abscess. Examination of pus showed presence of staphylococci and tubercle bacilli. (See text.)

Remarks.—There are very few similar cases on record where there has been such a mixed infection. Under such conditions it is impossible to make a diagnosis unless the pus has been examined for the presence of the tubercle bacillus and the kidney shows typical tuberculous changes. Whenever fever persists after the evacua-

tion of a perinephritic abscess a further examination as to the underlying cause is indicated.



GROUP V—CLOSED TUBERCULOUS PYONE- - PHROSIS

Fig. 6.—Temperature chart from case of mixed infection in tuberculosis of the kidney in Case No. 226. (See text.) The pus from a perinephritic abscess contained both staphylococcus aureus and tubercle bacilli.

Case 916.—A female, aged 25, began to have a dull pain in the left lumbar region, but no urinary symptoms, three months before admission. Upon admission the principal complaint was a dull aching pain over the left lumbar region posteriorly. The urine was clear for the first two months while under observation. There was a slight rise of evening temperature and a progressive loss of weight and strength. Upon palpation of the abdomen the left kidney was palpable and slightly enlarged. The case seemed a very puzzling one until suddenly the patient began to have chills and the temperature rose to 105° F. The left kidney then was found to be distinctly enlarged. The urine contained a moderate amount of pus, but no tubercle bacilli. Cystoscopy at this time (third month in the hospital) showed the left half of the bladder red and edematous, but no changes in the appearance of the left ureteral orifice. It was found impossible to catheterize this left kidney. A diagnosis was made of pyonephrosis and at operation we found a greatly enlarged kidney showing advanced tuberculous changes, but we were unable to find any communication of the renal pelvis with the ureter.

Remarks.—This case illustrates what Gordon has termed the "silence of renal tuberculosis." There were only vague symptoms such as backache, loss of weight and strength and slight fever without any urinary symptoms for months. The sudden appearance of a pyuria and other evidences of renal infection (chills, fever, enlargement of the kidney) helped to localize the cause of her indefinite symptoms. The reason for this unusual clinical syndrome is that the escape of pus was prevented by an early closure of the ureter, resulting in a closed tuberculous pyonephrosis, one of the most puzzling of all the many pictures under which renal tuberculosis appears. These cases progress until the kidney is entirely replaced by cavities containing a caseous detritus (Fig. 7) and are the most difficult form to recognize unless symptoms supervene which help us in localizing the disease.

RESUME

The possibility of the existence of a renal tuberculosis must always be considered whenever one of the groups of clinical symptoms I have just enumerated presents itself. These symptoms, however, are but the guide post, and to make a diagnosis we must call to our aid all of the modern diagnostic methods known in the field of kidney surgery. It is only by a most thorough study of the entire urinary tract that we can exclude other forms of renal infection.

The following are the most important data upon which to make a diagnosis of renal tuberculosis:

1. Bladder Symptoms.—(a) increased desire to urinate, at first often at night, but later diurnal; (b) painful urination, concomitant with the increased frequency, which gradually becomes more and more severe; and (c) incontinence or great irritability as the bladder involvement progresses, so that the patient is unable to control urination.

2. Kidney Symptoms.—There is either a dull ache or there are recurrent colicky pains on the affected side or on both sides in bilateral involvement. Enlargement of the kidney is a very unreliable finding. It may be absent altogether and the opposite kidney may be compensatorily enlarged. The same is true for tenderness over the diseased kidney. Rigidity is only found when there is an invasion of the perinephritic tissues.

3. Fever.—There is little as a rule unless there is a mixed infection present or a sudden retention.

4. Urinary Findings.—Pyuria may be present except in cases of closed pyone-

phrosis or in the early stage of mixed infection cases. Hematuria may be the first symptom or may appear with pyuria at intervals. Tubercle bacilli can be found in the urine in 80 per cent. of the cases by the Forssell or Crabtree methods.

Fig. 7.—Tuberculous pyonephrosis from Case No. 916. Note large cavities scattered through entire parenchyma and almost completely replacing it. Many of these cavities are filled with caseous detritus.

5. Cystoscopy and Ureteral Catheterization.—This is the most important single method of diagnosis. Unless changes specific of tuberculosis (Fig. 8) are found in the bladder it is best to suspend judgment until the urine obtained by ureteral catheterization has been studied by culture and staining methods. Tubercle bacilli found in the urine obtained directly from the kidney is a very important factor in making the diagnosis.

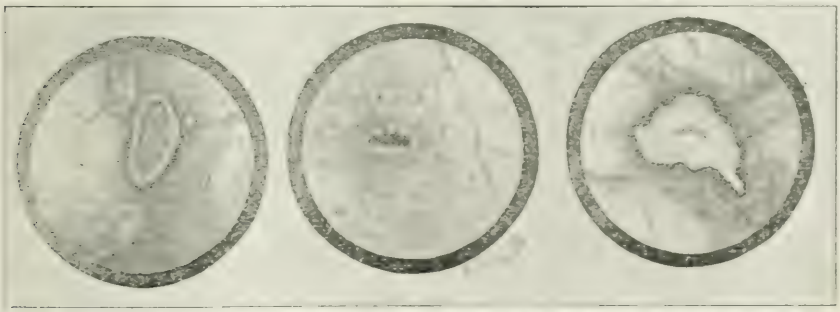


Fig. 8.—Three frequent cystoscopic findings in tuberculosis of the kidney. On the left are seen typical tuberculous ulcers; in the center miliary tubercles and a retracted (golf hole) ureteral orifice; and on the right a ureteral orifice surrounded by tuberculous ulcerations.

6. Pyelography and X-ray.—These are very important and should be done as a routine in all cases if possible. They yield much information as to the changes in

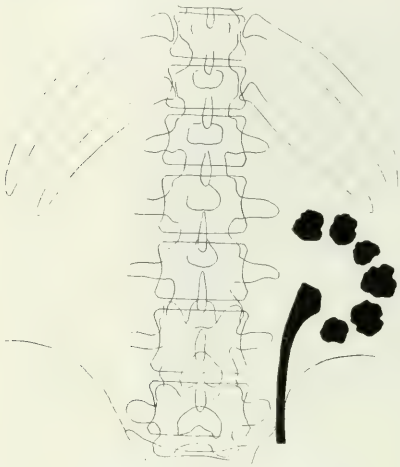


Fig. 9.—Tracing of pyelogram from a case of renal tuberculosis. (Case No. 1581.) Note deformity of calices and widely scattered shadows so typical of a pyonephrosis.

the renal pelvis and parenchyma (Fig. 9). It is impossible to describe these in detail here, but to those who are interested I can warmly recommend reading the recent paper by Braasch and Olson (*Surgery, Gynecology and Obstetrics*, 1919, 28, 555) as representing the latest information on this portion of the subject.

THE TREATMENT OF URETERAL AND RENAL STONE*

By O. S. McCown, M.D., F.A.C.S.,
Memphis, Tenn.

The subject naturally divides itself into the management of ureteral stones and stones located in the kidney.

Ureteral stones will be considered first. The majority of stones in the ureter will pass spontaneously, so the patient in the first attack of renal colic, or in whom the symptoms are of recent origin, should be given medicine for the relief of pain and an abundance of distilled water. If spontaneous passage of the stone does not occur in a few days then active measures should be instituted.

CYSTOSCOPIC METHOD

It is bad surgery to do a cutting operation for the relief of ureteral stone without first trying to induce the stone to pass by cystoscopic manipulation. The things that can be done to this end through the cystoscope are: (1) catheter manipulation with the injection of sterile oil or glycerin; (2) dilatation of the ureter with bougies and mechanical dilators; (3) fulguration; (4) the use of ureteral forceps; and (5) incision of the ureteral orifice with the scissors or knife. My experience has been limited to the first, second and fifth of these items. While it is true that some of the stones which pass after cystoscopic manipulation would probably have passed spontaneously, I am sure their passage may often be hastened, and I have had the stones pass after ureteral dilatation in patients who had suffered for months with no evidence of progress of the stone along the ureter, and in whom I think a cutting operation would have been necessary but for the dilatation and manipulation of the stone with the catheter. I usually combine these manipulations with the injection of liquid petroleum as a lubricant and to stimulate peristalsis in the ureter. Buerger advocates the use of fulguration by means of insulated olive tipped bougies which are carried up the ureter until the olive tip comes in contact with the stone, when the d'Arsenval current is turned on. According to Buerger, the current will facilitate the passage of the stone by causing a relaxation of the ureter. However, I think that the dislodging of the stone and dilatation of the ureter by the passage of the bougie are the useful factors.

It is surprising how much dilatation can be gotten by the use of bougies and dilators. I have in some cases that would in the beginning barely admit a No. 5 catheter been able to dilate up to No. 11 with catheters and bougies, and then to enlarge this considerably with the dilator, and in this way secure the passage of

*Read before the West Tennessee Medical Association, Dyersburg, May 29, 1919.

stones that seemed permanently lodged. Incision of the ureteral orifice is occasionally useful to enlarge it so as to allow a stone to complete its passage into the bladder or for the admission of the catheter or dilator. I might say here that a stone lodged at a given place in a ureter sets up a local inflammation which thickens the walls of the ureter and causes stricture. For this reason it is not well to delay in offering instrumental assistance.

Bransford Lewis claims to be able to pass the forceps into the ureter and grasp the stone and forcibly pull it into the bladder. This has seemed to me to be feasible only in cases in which the stone is lodged at the ureteral orifice, and in which the forceps would not have to enter the ureter. In an occasional case of this kind the forceps is a valuable instrument.

According to Braasch, 74 per cent. of ureteral stones are in the lower third and of course these offer better prospects of successful cystoscopic manipulation than those higher up, but the method should be tried in all cases except those at or near the ureter-pelvic juncture.

OPEN OPERATION

In case of cystoscopic failure after persistent and patient trial, then open operation is in order. The ureter should be approached extra-peritoneally, incised lengthwise and the stone removed. Suturing of the ureter is desirable, but not essential. A small rubber tissue drain should be carried down to the ureteral wound and the abdominal wound closed. All surgeons warn against the use of gauze drainage because it tends to cause fistula.

RENAL STONE

The only treatment for kidney stones is operative removal. Not all of them should be operated upon as soon as a diagnosis is made, but the presence of infection or persistent hemorrhage are positive indications for operation. Patients who suffer continued pain should also be relieved by operation.

It is my custom to approach the kidney by the oblique loin incision recommended by Mayo, taking care to avoid injury to the twelfth thoracic and ilioinguinal nerves and the pleura. The removal of the twelfth rib is often of great assistance in exposing the kidney, adding much to the safety of the operation where the exposure is difficult. The operative wound is closed by replacing the cut structures as they were before with interrupted sutures of double No. 1 chromic cat-gut. Drainage is usually required and should always be used in case of nephrotomy or pyelotomy. In one of my cases of nephrotomy the kidney wound looked so nice after it was sutured I yielded to the temptation of closing the whole wound without drainage. There was leakage from the kidney which caused the wound to open and kept the patient in the hospital several weeks longer than he should have had to remain.

The operations for kidney stone are pyelotomy, nephrotomy and nephrectomy. In uncomplicated cases with stones in the pelvis or calices, pyelotomy is the operation of choice. A good exposure is essential to safety. The notch which is usually more pronounced posteriorly is found, the fascial-fatty capsule carefully separated from the kidney and pelvis, the pelvis incised and explored with the finger, the stones removed and the wound in the pelvis repaired with interrupted sutures of catgut. The line of suture is reinforced by replacing the fatty capsule as advised by Mayo.

Pyelotomy is contraindicated where the kidney is adherent to surrounding structures preventing a free and safe exposure, where the stones are embedded in the kidney substance, and in cases of large branched stones such as the specimen here shown. The accompanying specimens which were taken from the opposite kidney of the same patient were embedded in the kidney substance. There was pus and blood coming from both kidneys and a bilateral staphylococcus infection was present. The patient had previously had her appendix removed without benefit. She recovered from the kidney operations, done eighteen months ago, and has been well since.

Nephrotomy is required in cases of stone in which pyelotomy and nephrectomy are contraindicated, the incision in the kidney should be just posterior to the outer border of the kidney (Brodel's line), and may be made with the silver wire carried through from pole to pole on a large blunt

curved needle as advised by Cullen and Derge or by the knife. I have used the silver wire, but perhaps because of my limited experience in the use of the wire, have had better success with the knife. The incision should be long enough for the removal of the stones, but should not be unnecessarily long. After incision the stones are removed with as little traumatism to the kidney as possible, and in the case of large stone, with care not to break off fragments which might get lost and be left in the kidney, making future trouble. After removing the stones the kidney wound is sutured by mattress sutures of No. 2 plain catgut on a round needle carried through the cortical substance from side to side. The fibrous capsule is sutured by continuous or interrupted sutures of plain catgut. If there is infection in the kidney pelvis a soft rubber tube or folded rubber tissue drain should be carried through the kidney incision into the pelvis. In other cases the drain should be carried down to the cortical incision.

In cases of unilateral nephro-lithiasis in which the opposite kidney has been proven amply sufficient, and in which the affected kidney has been greatly damaged by infection, nephrectomy should be done. So far as operative danger is concerned, nephrectomy is safer than nephrotomy, and is of course more certain to cure, provided always that the opposite kidney has been proven to be present and to be sound.

I follow the usual technique, ligating the ureter and vessels separately with double No. 2 chromic catgut when the kidney comes well up into the wound, and clamping and cutting the pedicle and ligating the pedicle en masse when it can not well be brought up. Hemostasis is the most important single item in the operation, so I think the double ligature safer than the single because it will not break and is less likely to slip while the second knot is being tied. It is necessary to avoid laceration of the renal veins in dissecting up the kidney and to avoid injury to the vena cava and duodenum when applying clamps to the pedicle on the right side. Mayo says that injury to the duodenum occurs occasionally in this way, and always results in death within three weeks unless promptly repaired.

There are some special problems presented by some of these cases that should be mentioned.

Cases in which a pyelotomy or nephrotomy has been done and in which a subsequent nephrectomy is necessary are always difficult because of the adhesions surrounding the kidney. It is in such cases that subcapsular nephrectomy is a life-saving procedure. In this operation the capsule is split and the kidney enucleated from its capsule, the ureter and vessels of the pedicle ligated and cut, and the kidney removed.

Bilateral nephrolithiasis is another of the serious special problems. In such cases Braasch advises operating upon the better kidney first, while Kelly and Burnam, also Barney, advise the opposite. It seems to me that each case is an individual study. In the case from which the specimens just presented came, I operated upon the better kidney first because from the x-ray findings I thought the stones on that side more likely to obstruct the ureter. It is not advisable to operate on both sides at once. After operating on one side the other should wait ten days to two weeks, and if on careful cystoscopic investigation the operated kidney is found to be functioning well, then the operation on the other side should be done.

If there should be a stone in the kidney on one side and in the ureter on the other, the ureteral stone should be attended to first.

In case of stone in the kidney and ureter of the same side, the same course should be taken, unless the kidney is badly damaged, requiring nephrectomy. J. D. Barney says that where this combination exists the kidney may be removed, leaving the stone in the ureter, and that it will give no further trouble. On the other hand, if a pyelotomy or nephrotomy is done on a case with a stone in the ureter of the same side, a urinary fistula and failure to relieve the patient will result, neither pyelotomy nor nephrotomy should be done on a kidney with any kind of ureteral obstruction.

Finally in any case of urinary stone the patient should be instructed to drink as much as a half gallon of distilled water daily the rest of his life in an effort to

prevent the formation of other stones, as advised by Ochsner.

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ANOMALY OF THE KIDNEY*

By Buford N. Dunavant, M.D.,
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The following case of complete fusion of the right and left kidney is presented because of the extreme rarity of an anomaly of this degree and its confusing association with the condition for which operation was performed. As an index of its rarity reference is made to the figures of Bugbee and Losee (*Surg., Gyn. and Obst.*, February, 1919), reporting 23 cases of anomaly of the kidney and ureter in a series of 10,000 urologic examinations, among which were only three fused kidneys: one of the horseshoe type with fusion of one pole only, the other two with fusion throughout the long axis, forming a disc-shaped mass of kidney substance, to which type this case conforms.

CASE REPORT

Elvina M., Negress, age 31, married, was admitted to the Memphis General Hospital at 8 P. M. April 15, 1919. She was referred by Dr. W. H. Eason, of Lula, Miss.

Complaint was of severe pain in the right lower quadrant, which had come on three days previous to admission. She had been confined to bed and been given opiates for relief of the pain, which was severe and indefinitely localized. There had been no vomiting nor fever. The patient stated that four years previously, while lifting a heavy weight, she had "felt something give way" in the lower abdomen and that this had been followed by pain in the back and she had been "treated locally for female trouble" for five weeks. Since then she had had repeated attacks of pain in the right lower abdomen and back. These attacks had never been associated with any urinary disturbance nor blood in the urine. The patient had been married many years, but had had no children nor miscarriages. For years she had been troubled with leucorrhea associated with moderate menorrhagia.

Physical Examination.—The patient was a tall, muscular, well-developed and well-nourished Negress. Heart, lungs and general examination were negative except for the abdomen and pelvis.

Abdomen showed no distension. There was a very slight rigidity in the right lower quadrant with a little tenderness in that area, but not definitely localized. On a level with, and to the right of, the promontory of sacrum, a rounded flattened mass was felt about three inches in diameter, not in contact with the abdominal wall, and which moved rather freely laterally. It was not especially sensitive. Below this in the right side and above the symphisis other irregular masses were felt, evidently pelvic in origin and with the "feel" of uterine fibromata.

Vaginal examination revealed multiple fibromata filling the pelvis, most marked on the right. There was no fixation of the uterus and tumor masses nor was there any other evidence of pelvic inflammation. On account of the depth posteriorly in abdomen it was impossible to say positively whether or not the upper mass moved with the uterus.

Urine.—1020; a trace of albumin; no casts; a few leucocytes.

Blood.—W. B. C., 6,800. Differential count: polymorphonuclears, 61 % lymphocytes, 34 %; large mononuclears, 4 %; and mast cells, 1 %.

Operation.—On April 16, 1919, a median incision was made below the umbilicus. The appendix, which was thickened and embedded in numerous adhesions, was removed. On a level with, and to the right of, the promontory of the sacrum, was a rounded mass about three inches in diameter, retro-peritoneal and below the bifurcation of the aorta, which was displaced upward. The pelvis was filled with multiple fibroids, one of which had developed between the layers of the right broad ligament and extended upward until it was in contact retro-peritoneally with the mass which proved to be a fused kidney. On superficial examination it was believed that the upper mass was a part of the fibroids, but examination showed no pedicle connecting it with uterus or intraligamentons fibroid on the right. Examination of the right and left kidney fossae revealed an absence of the kidney from its normal bed on each side. The peritoneum was incised over the kidney mass revealing a typical renal fatty capsule and characteristic color and appearance of kidney substance. No further investigation of the kidney was made, as there was nothing in the history or appearance to indicate a pathological condition in it, the chronically diseased, adherent and kinked appendix being considered the cause of pain complained of. Supra-vaginal hysterectomy was done, the patient being returned to bed in good condition.

Urological Examination was made on the fourteenth day after operation by Dr. George R. Livermore and revealed a normal bladder with

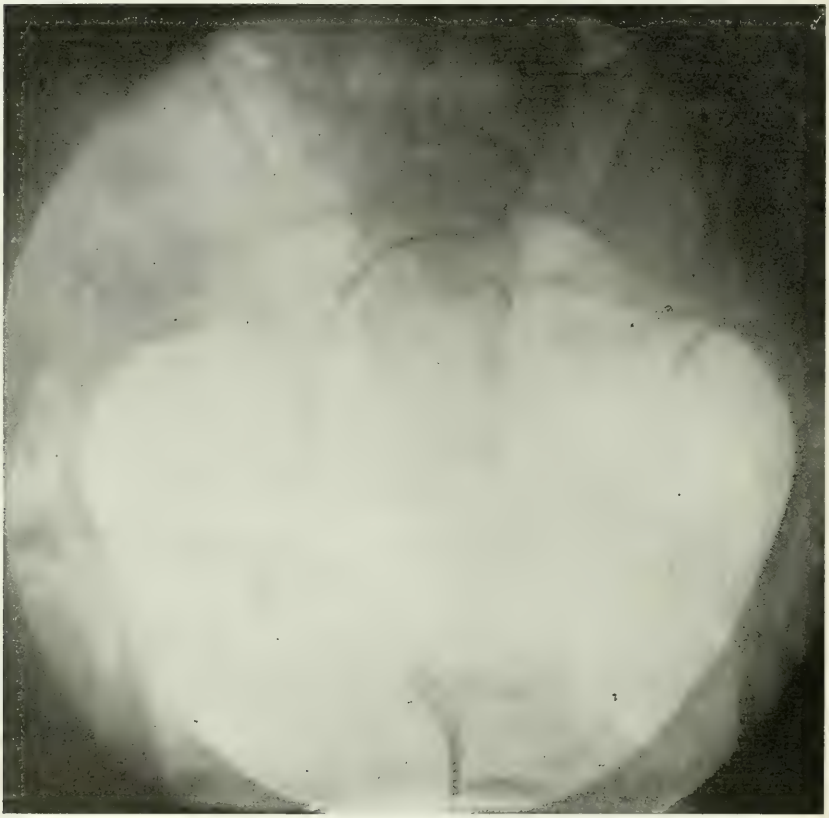
*Read before the West Tennessee Medical and Surgical Association, Dyersburg, May 29, 1919.

a normal trigone. The left ureter was catheterized with ease and the right after some difficulty. Shadow catheters were inserted and skiagram taken. These showed right and left ureters both passing up to the right of promontory of the sacrum, where they stopped. Thorium solution, 15 %, was injected and another skiagram taken, which showed separate right and left renal pelves, not communicating. Skiagram of the right and left renal fossae showed no kidney shadow. Urine, which was normal in appearance, was passed from the right and left catheters.

Post-operative recovery was uneventful, the patient leaving the hospital on the sixteenth day.

A cursory review of the recent literature on the subject reveals the following facts:

Anomalies of the kidney are relatively frequent, but rarely is the anomaly of the degree found in this case. They are due to a developmental fault and are always associated with a displacement downward of variable extent below the normal site.



Skiagram, showing both shadow-catheters in urethra and bladder (with loop on right), then passing up through normally located ureteral orifices and up to the kidney mass, the left catheter passing 1 inch to the right of the promontory of the sacrum.

Very early in fetal life the kidney buds lie opposite the second sacral vertebra, from which buds the kidney and ureter are developed, the kidney traveling upward to its normal site. At this early stage the kidney buds are lodged between the V-shaped crotch of the bifurcation of the aorta, the kidneys escaping over the common iliacs in their migration upward. Fusion of the right and left buds having occurred, the vessels in question would greatly hinder upward migration of the fused kidney, which was very apparent in this case, the kidney being lodged in the crotch of bifurcation of the aorta, which was displaced upward and to the right.

That anomalies of the kidney and ureter predispose to disease, especially infection with resultant surgical pathology, seems an established fact, thus explaining the relative frequency with which such cases are found in a surgical clinic as compared with the post-mortem record of a general hospital. Of the 23 cases reported by Bugbee and Losee, all but two were the seat of infection.

REPORT OF A CASE OF UTERUS DIDELPHYS WITH HEMATOCOLPOS IN AN ATRESIC LATERAL VAGINA

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Errors in development of a part of the human organism are usually manifest at birth or very soon afterward, either in appearance or in more or less interference with function of the part, which enable a diagnosis to be made.

In case of the female generative organs, however, there may be a considerable degree of malformation existent in the early period of life, unrecognizable in appearance and giving rise to no symptoms. This is due to the fact that such abnormalities do not become manifest until interference with the menstrual function, inability to carry out the marital relations, failure to become pregnant, or complications of pregnancy lead to their recognition.

The following case illustrates one of the more infrequent types of maldevelopment of the female genital tract and is deemed of sufficient interest to be put upon record:

CASE REPORT

Louise M., colored, single, age 25 (Grady Hospital No. 82623), came to the Gynecologic Department of the Gray Clinic May 15, 1910, on account of pain at her periods.

Her past history was practically negative. The menses were established at 13, had always been irregular since onset, the interval varying from four to eight weeks, the flow lasting about three days, scanty as a rule, but preceded and accompanied by severe pain low in the pelvis and vagina, and a feeling as though the bowels wanted to move. There had been no inter-menstrual bleeding and only moderate leucorrheal discharge. She had never been pregnant. No bladder disturbance had existed. She had undergone no operations.

On examination the patient was seen to be of a short, heavy build, with such a heavy, rigid abdominal wall that very little could be made out on palpation.

Fig. 1.—Drawing showing cyst of vagina and rudimentary cervix exposed by removal of portion of cyst wall.

Vaginal examination showed normal external genitals, but on the upper left vaginal wall there could be seen and felt a tensely cystic swelling extending from the introitus back to the vaginal fornix to the left of the cervix. The swelling was fixed and fluctuating, but could not be emptied or altered by pressure, and gave no crepitation nor impulse on coughing. Emptying of the bladder produced no change in the swelling. There was a normal-appearing cervix in the vaginal vault, centrally located, and the

uterus was normal in size, consistency, position and outline except for an indistinct irregularity along the left border. The right ovary was movable, though enlarged and cystic; but the left tube and ovary were not felt with certainty. These pelvic findings were unsatisfactory, due to the difficulty of palpating through the heavy abdominal wall.

The condition was thought to be a simple vaginal cyst, such as might arise from remnants of the so-called Gartner's duct, and operation was advised.

dark blood flowed on pressure upon the cyst. Her menstrual flow had ceased and there was no flow of blood from the cervix.

This finding seemed to indicate the existence of a rudimentary uterus with accumulation of menstrual blood in an artificially-formed cyst or possibly a rudimentary atresic lateral vagina.

At operation several days later, May 26, 1919, a circular piece of the cyst wall surrounding the small opening was excised under guidance of a probe, and after wiping out the blood from the cavity, another small opening with a fairly well-

Fig. 2.—X-ray taken after injection of barium through cervical canals, showing rudimentary uterus on left.

Several days later her menses returned at the regular time, but toward the end of the period, while sitting down, there was a sudden sensation as though something had ruptured in the vagina, accompanied by a discharge of dark, stringy blood. On examination at the Clinic several days later, the cyst seemed to be more flaccid and partially emptied, and in the left fornix there was a small opening from which

defined rim was seen above at the upper end of the cavity. A sound inserted there passed off to the left about two inches, while another sound inserted into the normal cervix passed off to the right about two and a half inches. These sounds, when directed toward each other, were prevented from meeting in the midline by a septum of tissue which apparently separated the two cavities down to the external openings. Each cavity

was then curetted, but the scrapings from the left were more scanty than from the right side The cavities were then injected with twenty-five per cent. barium sulphate in soft white vaseline and gauze packed against the openings.

The pelvis was then x-rayed, and the plate showed a double uterus, the left organ being smaller than the right and showing a single tube arising from its upper left border. Incidentally this illustrates the danger present if irritant solutions are injected with any pressure into the uterine cavity.

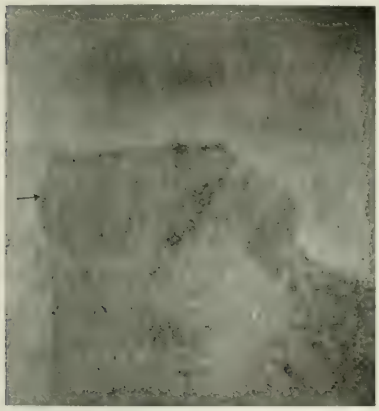

Fig. 3.—Section through part of cyst wall, showing lining epithelium of vagina. Arrow points to stratified epithelium of vaginal wall.

That the two organs do not appear entirely separate down to the cervix may be due to the fact that the shadows are partially superimposed due to one part being more anterior than the other. The inability to make the probes meet seemed to indicate that the cavities were completely separated.

The patient was discharged from the Hospital on the tenth day after operation, having had an uneventful convalescence. She returned for examination July 24, 1919, and reported that she had had her first period several weeks previously following operation. It was seven days in duration, increased in amount but not profuse, and accompanied by no pain either preceding or during the flow, evidently due to the free outlet afforded for the blood from the rudimentary uterus. Examination showed the border of the excised portion of the cyst wall smooth and well healed and the more distal part of the cyst collapsed and entirely obliterated. The two cervices were palpable in the vaginal vault. The prolapsed and enlarged cystic right ovary seemed to be more sensitive and adherent, but was not causing much discomfort.

A piece of the excised portion of the cyst wall and the curettings from the rudimentary uterus were sectioned and examined by Dr. John Funke, to whom I am indebted for his assistance.

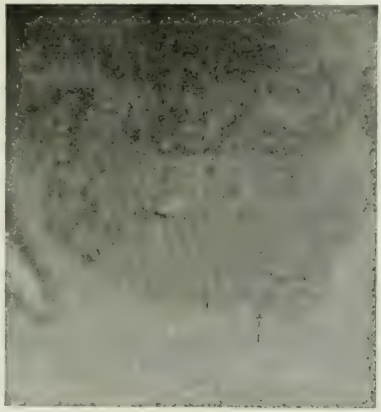

Fig. 4.—Section through part of cyst wall showing stratified epithelium lining the cyst. Arrow points to the stratified epithelium lining the cyst.

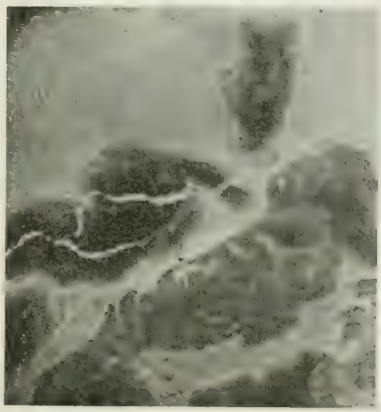

Fig. 5.—Curettings from rudimentary uterus showing typical uterine mucosa and glands. Arrow points to uterine gland.

The accompanying photomicrographs show a stratified epithelium on the vaginal side of the cyst wall, and a definite epithelial lining consist-

ing of four or five layers of cubical or low columnar cells of the transitional type, having a definite basement membrane on the cyst side of the wall. Since vaginal cysts derived from remnants of Gartner's duct are lined with a single layer of low cubical epithelium, the above finding would seem to indicate that this cyst was a true rudimentary vagina which had been periodically distended by the discharge of blood from the rudimentary uterus above. That this distention, throughout the preceding years since puberty, had not given rise to a larger tumor or more marked symptoms can only be explained by the possibility that the escape of blood from the rudimentary uterus was small in amount as compared with the more normal uterus and was almost entirely absorbed in the intervals between the flow. The curettings from the rudimentary uterus showed typical uterine mucosa and glands.

A glance at the accompanying illustration of the development of the female organs will indicate that this is not a true double uterus in the strict sense of the term, meaning a complete duplication of the uterus. Such a condition is exceedingly rare and is associated with a very wide pelvis and duplication of all pelvic organs and vulva, as well as the lower limbs, and would necessarily be the result of a double set of Mullerian and Wolffian ducts in the embryo.

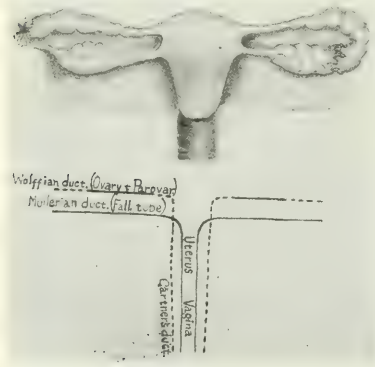

Fig. 6.—Development of genital tract (diagrammatic).

The abnormality in this patient is explained by the failure of fusion of the Mullerian ducts which form the tubes, uterus and most of the vagina. This results in two separate uteri, but that each of these is in reality only half a uterus is shown by the fact that each part possesses but one tube and ovary. Each part may, however, functionate as a normal organ.

Clinically this patient is apparently cured of the symptoms of her abnormality, made manifest by the menstrual disturbances, and is no longer subject to the danger of infection and suppuration of the hematocolpos, but may, in the future, be the subject of various obstetrical complications. Pregnancy may occur in either uterus, simultaneously or at different intervals, giving rise to the idea of superfetation. As a rule pregnancy and labor proceed normally, but there is a possibility that a poorly-developed musculature in the rudimentary uterus may predispose to rupture during labor or that one organ may act like a tumor wedged in the pelvis and give rise to abnormal presentations of the fetus or offer obstruction during labor.

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THE EARLY DIAGNOSIS OF BILIARY TRACT INFECTION

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The importance of an early diagnosis of biliary tract infections is most important both from a medical and surgical view.

The importance connected in this phase, we are beginning to recognize the common symptoms which were frequently overlooked and if the proper care and treatment had been applied, many operations for gall-bladder conditions, especially, would have been avoided, thus saving patient and physician many hours of worry.

The symptoms of cholangitis and cholecystitis are much the same, for in most cases of cholecystitis the bile ducts are simultaneously affected.

If the acute inflammation is extensive it will cause distress in the region of the gall-bladder, enlargement of the liver, etc. The symptoms will vary with the amount of the inflammation and biliary stasis. There may be intense pains simulating those of gall-stone colic.

Should decided jaundice follow, that is proof positive of some obstruction in the ducts.

There is then presented the clinical picture of anorexia, nausea and usually vomiting, distention with eructation of gases, constipation with history of light colored stools and perhaps slight fever, with no or slight increase in leucocytes.

In a study of a large series of cases it was very striking that the white blood cell count was normal with only an exceptional slight increase.

The urine always showed bile in excess and was very highly colored and concentrated.

In addition there may be a slow pulse, itching skin, and a picture of being critically ill.

Should the infection of the gall-bladder or ducts extend, there is an increase in the white cell count with elevated temperature, possibly originating from some previous attack or exciting cause. The symptoms may be masked but none the less fearful. I have seen many who complain of digestive manifestations whose complexions though sallow are not yellow, but the sclera usually is pigmented, and who give no specific history that would point to gall-bladder or duct involvement.

Here a phase presents itself in a class of cases who frequently presents symptoms of great abdominal distention with a very irritable stomach and vomiting, who simulate symptoms of impaction and have little or no temperature, with a previous history of loose bowels for a day or two, when there is a gradual rise in temperature, due to stasis followed by toxic products, and the acute symptoms subside which were no doubt due to disturbances of the biliary tract.

Here I may also add those patients who have not been relieved of their original symptoms of abdominal distress, mainly indigestion and pain or if I may be allowed, "bilious attacks," as it is usually termed, who have been subjected to appendectomies, gall-bladder and pelvic operations, when in reality the proper method of relief would have been measures directed against these causes of abdominal discomfort, mainly visceroptosis, sacro-iliac strain, early tabetic crisis, etc.

In some instances it would seem that a physician considers ptosis of the abdominal contents out of the question unless the abdomen is protruding and its wall somewhat relaxed.

While it is quite true that in this type of case some ptosis is practically always present, it is also true that there are many patients who have no protrusion of the abdominal wall who nevertheless suffer from this condition, either because they are so lean that the pads of fat designed by Nature to aid in keeping the abdominal organs in place have been absorbed, or the configuration of the lower part of the chest, of the vertebral column, or of the pelvis is such as to cause displacement of the abdominal and pelvic organs. Then the proper support for correction should be applied with further study, laboratory aids, diet, etc.

Gastric crisis should be considered important, for it is so often overlooked.

If we are dealing with the luetic or diabetic type it is a grave condition. The diabetic type, the blood sugar content, the history and urine, are diagnostic. The early tabetic type with no material change in pupils nor reflexes, or with bladder symptoms, gait, etc., with no clear history of lues and the blood Wassermann questionable or negative, which, when the proper treatment was applied, improved. In relating this class of cases it certainly impresses us greatly, for many gall-bladders have repeatedly been drained and removed, only for the pains and symptoms to continue. This also applies to the appendix, uterus and appendages, which have been subjected to removal.

The liver may be rightly considered the filtration plant of the abdomen. Hence it is so important to deduct your symptoms for final conclusions. Its circulation is such that the hepatic function is closely related to all of the abdominal viscera. There is also a direct relation between its sympathetic supply and the general nervous symptoms, which when incoordinate may act reflexly upon the normal functions of the liver. That is why undue nervous excitement, fatigue, certain industrial employments, personal habits, intoxicants, infections, and in fact any physical, chemical, mechanical or physiological disturbance of the body may effect the hepatic functions.

Because of its special anatomic relation between the return circulation from the liver and the inferior vena cava, the liver is subject to influence of interference with the normal circulation caused by cardiac disease. Various hepatic derangements may, therefore, be expected in cardiac lesions.

The liver receives the return blood from the stomach, spleen and intestines, and is, therefore, subject to deranged function which accounts for my explanation and consideration of visceroptosis as acting as

a constant irritant, leading to the formation of excessive connective tissue at the expense of the venous supply, and causing a damming back of the blood into the intestinal viscera, which no doubt is responsible for the symptom-complex; that disease in other organs may produce changes in the biliary tract or that diseases originating in the liver may produce symptoms in other organs.

Cholelithiasis is a subject of ever-increasing interest. It is estimated that about 10% of the population have gall-stones, and that only half of these ever give rise to serious disturbance.

In reviewing the autopsy reports of different hospitals, this percentage is a very low estimate. Numerous theories have been advanced regarding the cause of the formation of gall-stones. Errors in diet and the various food elements have been considered causation and have led to the establishment of various dietaries. Most observers, however, are inclined to consider the streptococcus and colon bacillus, etc., theory with favor. The typhoid bacillus must be considered, as the previous history shows that a large percentage of tract infections have had typhoid fever at some time.

Syphilis is also a factor, for in a series of forty cases twelve gave a positive Wassermann. Whether or not this was a coincidence, it should be considered, no matter if they were the class of patients who apply for treatment at our city institutions.

The two factors that in all probability exert the most influence on the formation of stones are the stasis of bile and the inflammation of the bile passages and gall-bladder.

It, therefore, follows that, apart from neoplasm and contiguous diseases, disease of the biliary passages arises from three sources: the blood-stream, the lymphatic stream and the bile; and the bile undergoes three separate forms of alteration: infection, stasis and alteration in its chemical constituents. Infection takes place through the blood-stream, the lymphatic channels, ascending from the bowel and descending from the liver.

Take for consideration a case that comes to you and has been repeatedly diagnosed a neurotic or nervous dyspeptic. You put this patient to bed and give her the rest cure with diet; but the stomach symptoms continue. Your clinical symptoms are marked to a degree because the laboratory aids are not always supportive when a barium meal is given which shows a gastric ulcer, for which a gastroenterostomy was done and incidentally her appendix, which was normal, was removed, but finally the gall-bladder was found diseased and drained.

This nervous dyspeptic is now well, because a very material cause for nervousness was removed by material means.

I may cite repeated cases, but this special case was diagnosed as a confirmed neurotic by a number of men, and finally had her pelvic organs removed without any abatement of her condition, when in reality it was found after careful observation that she was subject to intermittent biliary colic attacks and a diagnosis of biliary tract infection was made and an exploration revealed a gall-bladder full of stones, the removal of which cured her neurosis.

Here we may take up the term of "biliousness." How often is it that a patient comes and claims he is bilious or that his doctor stated that this is his ailment and gives you a history of repeated attacks of vomiting stuff as green as grass, with digestive trouble; what else could it be but bile? Therefore, a blue pill or calomel to cleanse the liver and relieve temporarily is given. Is there any other reasoning when you are dealing with facts that your trouble is in the biliary tract?

In the so-called bilious attacks due to throat infection, to use the term streptococcic instead of rheumatic, in many instances they will be in the gall-bladder, the pylorus, the appendix or ureter. They must be eliminated before one may even venture to invoke another name.

Here this discussion leads us to the familiar term "indigestion," which, if time and space allowed, could be dwelt upon indefinitely. We take up the limited use of the name itself as it is usually applied to indicate a temporary condition, to make the name a target for prolonged treatment and to neglect the gall-stones, the appendix, the stomach ulcer, carcinoma, nephritis or tuberculosis.

Have you not seen just these cases and after due time your patient return? If you had placed more importance in his

symptoms of his weakness and loss of weight and not been satisfied to call it indigestion, the mistake might have been averted.

So, no more misnaming of indigestion, but find the real cause which, I dare say, in 60 % of cases are due to biliary tract infection.

In the last few years I have been impressed by the importance of street car nausea and vomiting, especially in children. After a thorough examination had revealed no particular findings, the proper correction of glasses would remedy it.

That a real hereditary nervous affection causing headache with vomiting does exist, one can not deny; but it must also be borne in mind that apparently these conditions are relieved by the pathological gall-bladder.

TREATMENT

Practically all of these cases have disturbances in bowel function. In fact, the more I see of biliary tract infections, the more I am impressed with the primary importance of the bowel, and that is thorough elimination. This may be done with whatever drug is at hand, but the routine I have used with success is calomel gr. I, followed by a saline such as magnesium sulphate, sodium phosphate, etc., enemas and high colonic flushes to reduce distention. Morphia should be used to alleviate the acute pain only when absolutely indicated.

Many are associated with evidences of colitis and enterocolitis, others in which no actual influence of infection can be elicited which shall be treated symptomatically, diet, chologogues, etc. When the acute symptoms subside, a thorough eradication of all seats of infection should be investigated and corrected.

It follows that the rational treatment of hepatic or biliary disturbances should be by way of the bowel, which will directly or indirectly influence these organs by way of the portal system and increase the hepatic and biliary function by high colon irrigation with cholagogues and diet.

DIET

Best known among the forms of dietetic treatment for diseases of the biliary tract is the so-called low cholesterol diet. This is based on the definite conception that an increase of circulating cholesterol plays a part in gall-stone formation, and also on the fact that an increase in circulating cholesterol may be due to a diet rich in these substances. Chaufford, therefore, excludes the yolk of eggs, peas, fatty meats, all fried foods and pastries, and in fact all freshly baked cake and bread.

Those cases which are not relieved in due time and show no abatement of symptoms should immediately have surgical care by a general exploration and early removal of foci to avoid a chronic ailment, adhesions and further infection.

CONCLUSIONS

1. That a thorough study of conditions should be made.

2. That an exploration should be done to remove foci to avoid adhesions and extension of infection.

3. A closer co-operation between surgeon and clinician.

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CHANGES IN THE SURGICAL TREATMENT OF PLEURAL EMPYEMA FOLLOWING THE RECENT EPIDEMIC OF PNEUMONIA*

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For the past few decades changes made in the surgical treatment of pleural empyema have not been numerous, except variable technic in regard to drainage, and varying methods of doing a thoracotomy or a costectomy. Writers differed as to the character of the incision with respect to the form of outlet devised, but the majority agreed that the time-worn surgical axiom regarding pus cavities was to maintain its position in the forefront; and that rule was free drainage.

Those more timorous of radical interference set up extravagant claims for a simple thoracotomy without rib resection, merely using a two-or three-inch incision intercostally with several rolls of rubber dam extending into the cavity. Other operators were content to introduce rubber

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drainage tubes by simple thoracotomy, and through these to instill bland cleansing irrigations. Still others used formalin or other sterilizing injections introduced into a closed cavity.

It seems plausible that with the advent of Dakin's solution and our desire, if possible, to prevent pneumothorax, we have working principles which will shorten the convalescent period and offer the patient a post-operative physical status more nearly approaching his normal.

The principles and results of treatment tabulated in the paper are based upon personal experience in the empyema ward of U. S. General Hospital No. 14 at Fort Oglethorpe, Ga., where it was the writer's privilege to treat and study one series of forty-two cases of empyema as a class during the months of November and December, 1918. The character of treatment used was thought by Col. Edward Martin, of the University of Pennsylvania, and who was Chief of the Surgical Service of this Army Hospital, to offer results superior to all other methods.

The main outstanding points in the surgical treatment used are: (1) to avoid pneumothorax, (2) to establish adequate drainage, and (3) to irrigate the pleural cavity with a half of 1 per cent. of Dakin's solution.

The title of this paper does not allow a scope sufficient to discuss the character of organisms present, the routine of cultures made and of the bacterial count, nor the various physical and roentgenologic findings. Capable internists, technicians and bacteriologists made possible a satisfactory mode of diagnosis and medical treatment as shown by end results. The experimental work done in the laboratory to find agents other than Dakin's, which would digest the fibrin elements of the discharge were interesting, but the discussion is not warranted here.

By far the most complete statistics have been made in the Army camps and Army hospitals, where large numbers of cases were segregated. In civil practice the number of cases in a given community were divided among the local hospitals, so that no one man had an opportunity to study a large number of cases. The reports from the empyema commissions of various Army hospitals have given, through the columns of the medical press, an elaborate account of findings, chemical, physical and bacteriological, which simulate closely our findings from similar examinations. The same commissions and individual writers also have gone into the question of stimulant (alcoholic), and high caloric feeding as supportive treatment.

To avoid being tedious we shall omit statistics in detail, only noting this one group of forty-two cases, the method of treatment, and the end results. The question of age and sex has no part in the presentation of these cases, as they were all young, husky soldiers. It was the general practice to aspirate first and give the patient an opportunity to recover without radical drainage. In doing any form of aspiration or probatory puncture, it is very important not to wound the lung tissue with the needle, as the taking of infectious material into the lung may develop new pus pockets. In case the fluid in the chest cavity is found to be sterile, as in very recent cases of pneumonia, the fluid is drawn off and the patient allowed to wait a few days. Later, if symptoms warrant, the chest is aspirated again, or when necessary, preparation is made for drainage. Even in some cases of frank pus the patient may be aspirated repeatedly if each succeeding aspiration seems to be beneficial. Six of the forty-two cases recovered after interval aspirations (usually every five or six days) and without the aid of drainage. One of the cases, a young Negro, had large quantities of pus in each pleural cavity. The patient was drained by the method later described on the right side, and three weeks later a large accumulation of pus was found in the left pleural cavity. The left cavity finally cleared with repeated aspiration. If it had been thought best, however, to drain the left side also, the drainage of both pleural cavities by this method is safe and of very little risk to the patient. Double drainage affects the normal action of the lungs only slightly. How different is the picture if a costectomy on each side is done, with resulting bilateral pneumothorax!

The following method of drainage and

treatment is the Mosingo method, with possibly slight alterations:

TECHNIC

By probatory puncture with a syringe of twenty-five or fifty cubic centimeters capacity and a large bore needle the site of drainage is determined. It is desired if possible to drain posterior to the post-axillary line and at about the level of the seventh or eighth interspace. A case may be found which is an inter-lobular abscess and affecting only a small circumscribed area in the pleural cavity. In this case the tubing must be done at the site where the needle finds pus, whether or not the location is selective for drainage. When the site for drainage is determined, the aspirating needle is left in-situ as a guide for the small incision. It must be remembered that the roentgenologic report is extremely important in determining the site of drainage, and also to some extent determines the depth of the tube's insertion, as well as indicating the thickness of the parietal pleura. The field is blocked with a 2 per cent. novocain solution prior to the needle puncture. This puncture is made easy by first incising the skin with a scalpel. An incision one inch in length is made in the interspace and following closely the aspirating needle. The opening is made slowly and after the fashion of a stab wound. When the abscess cavity is entered, the finger is thrust into the opening to prevent the inrush of air. A large gum-rubber tube one-half inch in diameter and fifteen inches in length is threaded through a flat cork (cork one-sixth inch thick and one and a half inches in diameter), the tube fitting very tightly in the cork and clamped by a curved hemostat at each end. The cork should be placed about three inches from the end of the tube which is to be inserted into the cavity. As the finger is withdrawn from the incision, the clamped short end of the tube is forced well into the pus cavity and the clamp removed. The clamp is left on the distal end of the tube. A silk-worm gut closes each end of the incision and is then tied over the cork pulling it tightly against the chest. The flat cork is now plastered fast to the chest wall by criss-cross layers of adhesive; a gauze sponge should interpose between the cork and the chest wall. The distal end of the tube may now be unclamped and the cavity slowly emptied. For twenty-four hours the patient is kept quiet in bed without further treatment. The cavity is irrigated first with saline to accustom the patient to the procedure, and if a pulmonary fistula exists, to save the patient pain and embarrassment by not overflowing the cavity with the first irrigation of Dakin's fluid. In case of pulmonary fistula, a smaller quantity of fluid is used The irrigations of a one-half of 1 per cent. of Dakin's are used every two hours during the day, and every three hours at night. A glass "Y" is attached to the distal end of the drainage tube, connecting also with the Dakin receptacle which hangs about twenty inches above the patient's body, above, and connecting below with the tube leading to a Wolff bottle on the floor. The Wolff bottle establishes and maintains negative pressure. Clamps are kept on these last-named tubes, when each is not active in its proper function: e. g., the lower tube is clamped and 50 c. c. of Dakin's is let into the cavity by removing the clamp from the tube leading out of the Dakin container. The fluid is left in the cavity five minutes and the lower clamp is again removed, thereby allowing siphonage of the Dakin fluid and the discharge.

Caples, of New York, discovered that this method of siphonage gives twenty millimeters of pull by negative pressure, the normal pressure in the chest cavity being only eight millimeters.

BACTERIAL COUNT

The bacterial count is made every second day from a smear. When the count reaches the low figure of five organisms to ten fields, it is considered safe to close the cavity. After discontinuing Dakin's, it was our practice to use dichloramine-T in the cavity by nebulization twice daily. The nebulization is used for three days and the tube is then withdrawn, followed by secondary closure of the cavity.

LENGTH OF DRAINAGE PERIOD

All cases were closed in from twenty-one to thirty days. The field is made clean and the wounds closed with silkworm gut, and dressings applied.

COMPLICATIONS

Three patients had pulmonary fistulæ. Two had been drained previously by trochar and catheter which were unsatisfactory. In two cases the site of drainage became infected and caused some leakage of the irrigating fluid. (The body there is protected by heavy coats of vaseline.) One case had pericardial effusion in which absorption took place. Three cases had clubbed fingers from long-standing infection. Two cases developed phlebitis, one in the forearm and the other in the inner aspect of the thigh. One patient, a Negro, had pus accumulation bilaterally in the chest cavities.

COURSE OF THE DISEASE AND END-RESULTS

In a few cases a rise of temperature occurred some days after drainage was instituted and on examination it was found that the tube had slipped out far enough to make drainage unsatisfactory, or that side pockets had formed near the fistulous tract. These drained voluntarily into the original pocket. There was no mortality in this series of cases. There was no evidence that it would be necessary to do secondary operative work. There was no case of rib necrosis from tube pressure, and there were no sinuses.

OBJECTIONS TO THIS METHOD

1. This mode of treatment would be troublesome in small children, due to the child's desire for great latitude of movement of the body. For the small child I would suggest the same treatment minus the attached drainage tube leading to the siphon bottle, and would suggest clamping the end of the drainage tube which is held within the dressings. The irrigations can be made through this tube and drained out at the same sitting, care being taken not to allow a quantity of air to enter the chest cavity.

2. Cases where multiple pockets are shown by skiagram can be drained more adequately by an opening in the chest wall sufficient to admit of one or more fingers for the purpose of converting two or more cavities into one common pocket through the destruction of adhesions.

FACTORS FAVORING THIS METHOD OF TREATMENT

1. This drainage is easily accomplished with the aid of local anesthesia only.

2. Coughing is reduced to a minimum; whereas in costectomy the cough is painful and excessive for a few days.

3. There is positively no shock; while the shock in rib-resection is due to a collapsed lung and to disturbance of the natural pressure on the healthy side caused by the mobile mediastinum. However, if the mediastinum is thickened by adhesions, the normal relation of pressure in the healthy side is maintained.

4. There is not the added danger of secondary infection in a large chest wound exposed often for dressings.

5. The patient is more comfortable and cleanly, and there is total absence of odor in the ward.

6. It is possible to drain both cavities simultaneously if desired.

7. By virtue of this method of drainage and the proper use of the blow-bottle, and other lung exercises during convalescence, decortication of the lung will be rarely or never necessary.

8. Dakin's gives better results when confined in the cavity for ten or fifteen minutes. This can not be done under the open method.

The most important lesson taught by the recent epidemic is not to drain a pleural empyema until the body has developed a tolerance for the infection, or in other words until anti-bodies have been formed.

THE TREATMENT OF GUNSHOT FRACTURES OF THE EXTREMITIES*

By Robin F. Mason, M.D.,
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In the treatment of compound fractures, in which class all gunshot fractures fall, there are three main considerations.

These, given in order of their importance, are: (1) the saving of life; (2) the saving of limb; and finally (3) the preservation of function, the other two conditions having been met.

The thing of prime importance, first, last and always, in the treatment of this type of fracture, or, for that matter, any type of fracture, is a free, unstinted, intelligent use of the x-rays.

*Read before the West Tennessee Medical Association, Dyersburg, May 29, 1919.

Bones fractured by gunshot or other missiles should be fluoroscoped from as many different angles as the surgeon deems necessary in order to locate and localize all foreign bodies, as well as to get a good idea of the bone condition.

After foreign bodies have been localized and the skin properly prepared, the wound of entry should be opened and a thorough debridement operation done. Every particle of bruised skin, muscle tissue, fascia and all foreign material, as well as unattached bone fragments, should be removed with the knife and scissors, leaving, if possible, a smooth-walled, conical-shaped wound, the sides of which do not drop together upon removal of the retractors. In other words, you should try to leave a wound which will drain of its own accord, a wound containing no devitalized tissue left to die there and poison the patient, and a wound with no tendency toward the formation of pus pockets should infection take place. The very careful removal of small, loose bone fragments can not be too strongly urged, since such are purely and simply foreign bodies and will cause unending suppuration in case of infection. Here I might say that devitalized muscle can best be told by its loss of contractility. Muscle slow to contract or non-contractile, especially if a little off color, had best be removed. Needless to say, a due regard should be had in doing these operations for essential nerves and blood vessels.

Having cleansed the wound thoroughly, the next consideration is the proper setting of the bone, and the necessary antiseptic dressing.

I use the word antiseptic purposely, as these fractures should, in the overwhelming majority of cases, be regarded as infected. You will seldom be wrong in that assumption.

The infective process may be slight, indeed, and usually is if a proper debridement has been done, but few are there that can be safely closed.

Joseph Blake says this in substance:

"These compound fractures, unless produced by a rifle or shrapnel ball, which do not as a rule entrain clothing or other foreign material, are regarded as infected a priori.

"Where the wounds of entry and exit are in fractures produced by rifle bullets, they may be considered as uninfected for the reasons given above. When produced by shrapnel ball, judgment gained from experience must be used even when wounds of entry and exit are small and even then if aseptic operation can be done, it will do no harm, but may do good."

Shrapnel wounds of course have no place in civil surgery, and so they deserve no particular consideration. The rifle bullet referred to by Blake was the rifle bullet used in war, which is a hard metal bullet, whereas the bullet most often seen in civil surgery is of the soft-nosed type. Hence, it would seem that the rifle bullet of private life should at least be looked upon as a suspicious character and promptly ejected.

For the treatment of infection, nothing so far as I know has ever approached in usefulness the proper use of Dakin's solution applied after the method of Carrel and adapted to the individual case. Let me stress at this point that unless the Dakinization is done properly with the utmost precision and regard for details it is a waste of time and solution.

Improper application and poorly-prepared solution are responsible for 90 % of failures in the use of this marvelous agent. I can not go into the details of the proper use of this solution, but will simply mention some of the main considerations in its use. To begin with, one must divorce himself absolutely from the old ideas of drainage when using Dakin. I refer especially to counter-drainage, as, for instance, in a case of through-and-through thigh wound with fractured femur. If all foreign bodies have been removed, it is better if you allow one of the wounds to close and apply all your solution to the other.

In other words, you do not want to put your medicine in one side and let it run out of the other. You want to puddle the solution in the wound, allowing it to seep into every crack and cranny. The solution can be conveyed to the wound by whatever kind of tube you may think best suited to the situation. Remember always that it is not necessary but harmful to deluge the patient and keep his bed soggy in your enthusiasm to give enough Dakin. It makes the patient miserably uncomfortable and frequently causes an unnecessary dermatitis. Use just enough to fill the wound and no more. I may have stressed the use of Dakin's solution too much, but in my eyes it is our sheet an-

chor in pus surgery where there is bone involvement. The solution should be applied every two or three hours till the wound is bacteria-free or so nearly so that a closure can be done and the fracture converted into a simple one.

During the period of Dakinization such splinting should be used as best serves to hold the fragments in proper alignment without interfering with the antiseptic measures.

In femur fractures the Hodgens or Thomas splints are best during this period. They should be used in connection with the Balkin frame or some other overhead type of support. Plaster-of-Paris may be used after a closure has been effected.

Frequent x-rays should be taken with the patient in bed and in splints in order to correct such displacements as may occur. As a general rule as regards position, abduction should be increased in femur or humerus fractures, the nearer the fracture is to the socket.

The reverse is also true. All femoral fractures require, with rare exception, extension which can be applied by Buck's method or some other, depending upon the case.

Compound fracture below the knee, especially when both are involved and the fracture is in the lower thrid, require some method of extension.

The Sinclair skate usually meets all the requirements of such a fracture. Of course some splinting must be used in addition to the extension. The Thomas or Hodgens acts very nicely in conjunction with the skate and especially while Dakinization is going on. Plaster is the very thing in this locality after closure of the flesh wounds, or at least after some consolidation has taken place. If wounds are only partially closed windows can be cut in the cast and dressings done through them. No wet dressing works well with plaster-of-Paris unless the plaster has been well paraffined.

For humeral fractures the Jones traction splint will be found most useful where the fracture is not above the insertion of the deltoid.

In these latter high fractures some form of abduction or aeroplane splint serves best.

Fractures of the forearm are easily handled on right-angle, internal-lateral splints made of wire arranged after the fashion of a ladder. These splints should extend from axilla to finger tips.

The x-ray should be consulted frequently in all these types of fractures.

As regards wounds to joints, I shall speak only in a general way, as each joint is a law unto itself, and consequently requires individual treatment.

For instance, in the elbow, free movement may be most desirable, while in the knee carrying power is most essential, even at the expense of mobility.

Fresh joint wounds should be treated exactly in the same manner as the wounds of soft parts accompanying function. All devitalized tissue, synovia included, foreign material and bony fragments should be cut away, and, most important, perfect hemostasis made.

The synovia should then be closed with catgut sutures and the remaining periarticular structures either closed or left for delayed suture, depending upon circumstances. In those cases great care should be taken to drain the wounds to bones forming the joint itself; otherwise in case of infection the wound may attempt to drain itself through the joint rather than the other way around. No drain of any kind should be put in the joint, as it does more harm than good.

Motion, passive at first, should be started within the first three days, followed after that time by active motion, even in joints that are discharging.

Needless to say by way of conclusion, all patients suffering with gunshot fractures should have at weekly intervals from two to three injections of anti-tetanic serum.

PRE-OPERATIVE AND POST-OPERATIVE TREATMENT

By R. M. Harbin, M.D., F.A.C.S.,
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There are diverse views of pre-operative and post-operative treatment, due probably to a lack of a general co-ordinated effort at standardization, that would admit of becoming harmonized by a mere active and general study of the needs of the situation that can not be met by any one man's experience.

We are accustomed to think that so

long as mortality rates remain unaffected, our responsibility to the patient ceases; and the question of morbidity which partly depends upon hospital treatment, may be delegated to a rotating house staff. These statements are warranted by some clinical studies recently undertaken in four of the larger and best known hospitals in the East; and what is true of the larger is probably more true of the smaller hospitals.

The intelligent patient is deeply concerned as to the details that will apply to his case and will seek hospitals where his comforts will receive due attention, for he feels that an operation occupies one period of his life to which all energies should be applied. I dare say surgeons partake of the same feeling when they become patients, for I have heard them say they would personally prefer nitrous oxid to escape the suffocating effects of ether or that undergoing a normal laparotomy they would prefer the assistant's doing the operation and have the surgeon close the incision, etc. When the surgeon becomes a patient he loses his surgeonship, for Socrates sick is not Socrates well.

The modern internist is in advance of the surgeon in that he individualizes the patient and measures his personal angles, which is time-consuming, but the patient esteems it a privilege to compensate the time thus consumed. The great value of experience in handling a large number of patients seems to the surgeon to be an asset of efficiency, whereas the internist esteems it a liability to cursory methods.

The following discussion is based upon clinical notes taken from four hospitals* referred to and will be more or less composite in nature, reflecting the value I have derived from them along with some personal views. There are certain cases of surgery requiring special directions which will not be referred to, as the study of the treatment of only routine cases will be undertaken.

PRE-OPERATIVE REST

There are some patients without com plications whose physical forces need to be conserved by a period of rest, and this condition may be due to overtax plus the condition for which operation is sought. Experience has proven that such patients except laboring women chafe under a hospital stay during the attempt to make them recuperate after a decision to operate has been announced, and we are led to believe that it is better to withhold from the patient such announcements until the day preceding operation. They may be "treated," however, without reference to an operation, but in the home conditions would be otherwise. Forced feeding should be slackened two or three days before operation. All patients should be in the hospital at least the day before operation, for physical quiet as a preliminary is a *sine qua non* to an ideal anesthesia. There may be serious consequences from major operations through neglect of this precaution. I have personal knowledge of an unexpected death from shock following an uncomplicated hysterectomy, the patient walking to the hospital two hours before operation.

PRE-OPERATIVE LAXATIVE

Whatever the effect a laxative may have on the bacterial content of the intestinal tract, it is safe to say that a majority of the larger clinics administer a laxative 24 to 48 hours before operation; and castor oil seems to be the choice in a majority of instances as causing a negligible loss of fluids and is non-depletent by acting independent of osmosis. Ether and narcosis generally seem to offer insult to the normal waves of peristalsis and trauma of the peritoneum augments this effect; and putting the patient in the best condition to combat these effects would become the leading indication. Clinical observation leads us to believe that while a laxative under normal conditions does lessen the gaseous content of the intestines, it would in the presence of after-effects of narcosis, aggravate such a condition. Food likewise in any form would seem to be an encumbrance. We do know that symbiosis of the intestines is materially influenced by peristalsis and that while stagnation is undesirable, our efforts can only be in the direction of mitigating this subsequent evil. For these reasons it seems that the preliminary laxative that will empty the intestinal tract would have a necessary effect that can not be obtained for a num-

*One of the best printed systems of standardization I have seen has been worked out by Dr. George Gray Ward, of the Woman's Hospital of New York.

ber of days following narcosis, at which time a normal fecal movement announces that the way is open. A pre-operative laxative prepares the intestines for a period of repose. Contrary to many observers, I believe unprepared cases show the worst forms of gas pains. Surgical procedure should not be contented only in removing the effects of some vicious circle, but should seek to remove certain focal infections such as dead teeth, etc., that can be accomplished toward the close of the anesthesia. From numerous observations of teeth extractions I am led to believe that secondary infections from this cause are negligible and that for the time being the open is better than closed infection.

Frankness in the explanation of operations is a duty that every intelligent patient has a right to expect of the surgeon. Afterwards the patient should have a written statement of what was done. Insinuating possible dangers through efforts to hedge an accident is not fair, for the unaccustomed patient inhibits already a morbid dread. Dealing in the open wins confidence and co-operation.

The night before operation a hot bath should be given and field of operation should be shaved and scrubbed, applying a sterile bandage. Enema several hours before operation may be needed. While not always practicable, the morning hours should be preferred for operation and patients should remain in bed and not be allowed to stroll away time. For the same reason patients should not walk to the operating room. There is well-nigh universal agreement on the treatment of the skin with iodin; and in looking over patients it was discovered that iodin blisters were too common from running down where the air was shut off from the skin.

MORPHIA

Perhaps every surgeon agrees that the use of morphin is necessary at some time during the hospital stay of surgical patients, and those surgeons who have had personal experience as patients emphasize this necessity. Using morphin one hour beforehand has certain advantages in alleviating a feeling of dread, and converts the operating room into a more cheerful scene, and as it is more needed later, it covers additional points of advantage. To say that a rush of patients precludes its use is hardly a tenable argument.

ANESTHESIA

Perhaps any method of anesthesia skillfully applied and widely practiced is devoid of danger and the merits of such can not be verified by mortality statistics direct or contributory. The open ether drop method is the only one that approaches a fool-proof type, but when complicated apparatus are used, skill becomes indispensable. Technician anesthetists, when well trained, meet all the requirements, but hospitals charging the fees of licensed physicians are open to attack. When the element of danger is eliminated the choice of method depends upon that which is more agreeable to the comfort of the patient.

The morphin, nitrous oxid-oxygen, open ether sequence meets this requirement and admits of a simple technique. The effects of morphin should be at high tide before nitrous oxid is begun and with a cheerful psychological technic gives an ideal primary anesthesia. Children should be instructed to count and adults told to do some rigmarole, while the anesthetist offers reassuring words with a gentle stroke of the temples. Patients frequently refer to this stage as leaving the pleasant memories. It is needless to say that all shop talk and clatter of instruments and pans should cease. After primary anesthesia the effects of ether are lost to the patient. A considerable loss of ether toxicity is thus gained and cyanosis, which is generally due to hurry, is usualy little or nothing, but never desirable. If the patient is exceptionally rebellious, as in children, the ether struggle is to be preferred. Uniformity of the ether drop should be maintained and crowding accomplished by shutting off more air, pink skin ever being a sufficient criterion. The last skin suture should elicit movements of the patient. It seems unfair that an anesthetized patient should be made to wait for the surgeon to scrub his hands.

Asepsis with reference to the skin and air is relative and never absolute; and any amount of red tape that will minimize this source of danger is worth while. Operating rooms should have closed windows with artificial ventilation, and face masks will eliminate droplet infection. Dripping perspiration is a greater danger not yet obviated. The surgeon's hands

should receive careful attention, and in applying gloves the bare hand should never touch the outer surface. If the glove does not become punctured, the dry sterilization is equally as good; but if that accident should happen, the bichlorid solution in the wet glove would offer more protection. Perhaps the most flagrant and well-nigh universal sin against a refined aseptic technic is allowing skin contact when we know the iodized skin is never thoroughly sterilized, becoming less so when macerated to whiteness at the close of operation. This source of infection probably shows itself oftener in the incision than in peritoneum because the latter is more resistant. In two minutes additional time, by the use of towels and Moynihan hooks, a cofferdam effect may be constructed to give protection from skin contact throughout the operation and at the same time will in no way impede manipulations. After suturing the fascia of the recti muscles, this cofferdam should be removed and the marginal skin again painted with iodin. Tieing bleeding points and passing final skin sutures may be done with only needle points and tissue forceps touching the skin.

In closing incisions, it should be borne in mind that there is for technical skill a narrow channel of safety between the Scylla of tension and strangulation of tissue and the Charybdis of malapproximation and dead space, the latter sometimes having been brought about by a lack of hemostasis. The tension suture over a gauze roll seems more popular than ever and deservedly so, not only for the sake of uniform approximation but for the sake of inducing a necessary amount of capillary drainage of blood serum. Air-tight suturing blocks this drainage.

The advantages of porous or perforated zinc oxid plaster in hot weather are not fully appreciated in promoting comfort and preventing dermatitis.

When the patient is put to bed all hot water bottles should be removed; and when consciousness returns a pillow may be placed under the head and the side to the side positions used as desired. The nurse should be instructed to look for hemorrhage. From personal experience, the first twenty-four to forty-eight hours after operation gives an unbearable form of suffering mixed with pain and nausea, which, to the dazed patient, seems unendurable; but memory fails to record it later on and morphin seems to bridge over this period and still further obliterates memory. Residual urine should be looked upon as a more frequent cause of cystitis than the use of the catheter.

Gas pains seem to arise from the effort of peristalsis to overcome a toxic atony of the intestinal muscularis, and while morphin prolongs this toxic condition, it does relieve the pain. Fluids either relieve by being vomited or else aggravate the distress by augmenting the difficulties of peristalsis, which in due time eliminates the intestinal toxicity from narcosis. The stomach tube is of valuable aid and is frequently required where the preliminary preparation has been omitted. Intense thirst is not a necessary effect of depletion, for I have seen it just as marked after taking eight pints of saline solution per rectum in twenty-four hours.

In the four hospitals referred to, all patients reviewed showed about the same degree of so-called traumatic fever, which seems to occur more markedly in asthenic cases and offers a problem for further study.

The presence of minor infections indicates a break of aseptic technic somewhere, and in one hospital was quoted as 30 % by the house surgeon, while in others they were negligible. House surgeons stress the increase of minor infections among the patients of surgeons who are given to rough manipulations. Red tape methods are the only means for catching up this break. Catgut seems to bear the brunt of a lame technique in many instances. A recent investigator (Ely, *Journal A. M. A.*, June 14, 1919), has found that commercial catgut has shown contaminations to the extent of 11 %, but he does not indicate the character of the infection.

Without special indications the incision may not be disturbed until the eighth or tenth day, at which time sutures may be removed and may be mopped with dichloramin-T solution 2 %, which prevents the sticking of gauze and adds to the comfort of the patient.

Post-operative adhesions offer a peculiar difficulty in that each repeated operation is followed by more dense adhesions.

The peritoneum resents every effort of trauma by throwing out an adhesive exudate which becomes exaggerated in the presence of infection, but in the majority of cases no harm is experienced after resorption. Lately I have been using abdominal packs soaked in 2 % solution of citrate of sodium. The following case in point may be cited: A girl 18 years old had been operated upon eighteen months previous for a tubo-ovarian cyst (?) and the incision drained. She had repeated attacks of right iliac pain diagnosed appendicitis by physicians. On opening the abdomen there appeared extensive adhesions, hydrosalpinx and a diseased appendix. For two days the foot of the bed was kept elevated. Convalescence was normal and on the eighth day a large dense mass was palpated in the right iliac region. During the second week she had some attacks of colic and on the fifteenth day, after eating a hearty meal, she was taken with violent ileus and in six hours the abdomen was opened and the omentum found rolled up in a mass of matted coils. Adhesions were much more dense than originally and wide areas of denuded peritoneum were left. A large portion of the omentum was resected. During the operation the packs were soaked and the peritoneum was kept flooded with the citrate solution; and before closing about 50 c. c. of the solution was poured into the pelvis. Pituitrin was given twice a day, especially one hour after the enema or castor oil. Convalescence was normal and on dismissal a slight mass of adhesion could be palpated.

There seems to be a great ambition on the part of surgeons to have patients sit up early, but the patients do not partake of this ambition, and if left to themselves will spend several days in bed, perhaps unnecessarily. Sitting up prematurely seems to be an effort to see how close a danger can be approached without harm, because a few days lost in a life-time would be esteemed by the patient negligible.

The post-operative nurse should be instituted as a specialty, selecting a nurse of peculiar ability and long experience. A lack of this service perhaps creates more dread of repeated operations on the part of patients than any other cause. I value the opinion of such a nurse more than my own as to when a patient can be made more comfortable by an enema or else when the limit of endurance brings the necessity for the use of morphin. It is not fair to the patient to have a rotating experience of nurses and internes for this purpose. This nurse should have enough leisure to individualize patients.

Patients upon dismissal should receive a printed list of general instructions and operations should be marked to suit the individual case and the patient requested to report at stated intervals.

CONCLUSIONS

1. Patients usually chafe under a preoperative rest in a hospital.

2. A majority of the larger clinics adopt the non-dependent type of laxative such as castor oil before operation.

3. While all recognized methods of anesthesia skillfully applied are practically devoid of danger, the morphin, nitrous oxid-oxygen, open ether sequence commands more advantages with a simple apparatus.

4. Red tape methods are necessary to prevent a break of aseptic technic and skin contact furnishes a break that is too frequently ignored and the wet is preferred to the dry glove.

5. The use of morphin is well-nigh universal and is a lesser evil that boosts the power of endurance and clouds the memory of pains for the first few days after operation.

6. Thirst is not a necessary sign of depletion and will not usually be relieved by the taking of fluids.

7. Peristalsis should be conserved because time and rest of the stomach and lower bowel seem to be the most endurable method pending the elimination of the toxic suquelae of narcosis.

8. Rough manipulation tends to increase the percentage of minor infections.

9. Some preliminary observations warrant the belief that post-operative adhesions may be lessened by the use of a 2 % solution of sodium citrate soaked in packs and poured in just before closure.

10. Premature sitting up is a risk that intelligent patients do not care to assume despite the ambitions of the surgeon.

11. The post-operative nurse should be a developed specialty divorced from the rotating service of hospitals.

12. Every patient has a right to know what was done in written form with some printed general directions.

SUPRA-PUBIC PROSTATECTOMY*

By J. A. Graham, M.D.,
Chicago, Ill.

To William T. Belfield, of Chicago, is given the credit of priority in the removal of the prostate by the supra-pubic route. After Belfield's operation, in 1886, English surgeons brought it to the attention of the medical profession, in 1888.

Until quite recently operators, when confronted with a diseased prostate, seem to have lost sight of the importance of a careful study of the urine and the actual functional index of the kidney. Experiments on rabbits have shown that kidneys obstructed for fourteen days or less may regain their normal function; and the longer the obstruction period the slower will be the rate of recovery. Hydronephrosis of seven days' standing required forty days, and a fourteen-day obstruction required one hundred and fifty-two days to regain normal function. It will readily be seen that trying to force the urine by an obstructed prostate will eventually cause a back-flowing through a gaping ureteral opening, thereby producing the so-called "back-pressure" on the kidneys which will produce effects identical with hydronephrosis. Therefore, to obviate the foregoing obstacles, and to guard against post-operative complications, supra-pubic prostatectomy resolves itself into preparation, operation, and after-care.

PREPARATION

1. The 'phthalein test as an index to the functionating power of the kidneys stands at the head of the list as the most important indication "when to and when not" operate. This simple procedure should be carefully interpreted. The 'phthalein output should be 25 % the first hour and 40 % in two hours; but the higher, the better.

Reliance can not be placed on one, or even two, readings. Three or four are preferable. Where there is residual urine the patient must be catheterized in order to get the entire amount for each period.

2. A careful study of the urinary solids is observed, and also the urea. A safe average of the total solids should be about seven grains for each pound of body weight.

3. Blood examination consisting of hemoglobin, red and white cell estimation is of importance; and the hemoglobin of 40 % or under, as read by the Dare instrument, will necessarily mean a guarded prognosis. This condition should be improved when possible. Rest and careful attention to the hygienic surroundings, with a light, nourishing diet, should be insisted upon. Rosenthal test meal should be given.

OPERATION

A two-stage operation is chosen in the case of patients whose resistance has been lowered and whose general health has reached the limit of endurance; when kidney function is below par, or where constant straining at urination has caused a pressure on the kidneys. In these cases the shock of treatment should be lessened as much as possible, and they should be divided into two operations.

The fact can not be denied that of late years anesthesia plays a great part in the good results achieved in prostatectomy. I see no excuse for a general anesthesia in the preliminary step of cystostomy. Apothesine, which is now most conveniently supplied in tablet form, so that one tablet in one ounce of sterile water will equal 1 %, the percentage necessary for a satisfactory anesthesia. To each ounce of this mixture I add seven drops of fresh adrenalin. This I have adopted as my choice of local anesthetics in a variety of operations. It has proven most efficient and as yet I have never traced a complication to its use.

The pubes are shaved and scrubbed the night preceding the operation—the skin carefully washed with green soap and gauze sponge. Sterile dressings are placed over the area and held in place by a binder. Two ounces of castor oil is given, followed by a flushing twelve hours later. The patient may have a light breakfast and forty-five minutes before operation morphin gr. ¼ and atropine sulphate gr. 1/150 is given hypodermatically. If the patient is unduly nervous, morphin gr. 1/6 hypodermatically may be given immediately before operation.

*Read before the West Tennessee Medical Association, Dyersburg, May 29, 1919.

First Stage.—The skin is prepared just before operation by swabbing Phenoco over the surface. The bladder is then irrigated with warm salt solution and filled. The median line for about five inches is infiltrated with apothesine. A Luer needle is passed down through the skin and muscle and infiltrated. A finer needle is now passed just beneath the corium and a ridge made by injecting along the line of proposed incision. Wait five minutes or so until anesthesia is complete, after which make an incision through the skin and all the structures down to the prevesical fat. This is pushed up out of the way with a gauze sponge. The bladder wits its large network of veins will come into view. It may be necessary to infiltrate the bladder wall with more apothesine. A No. 2 suture of chromic catgut is passed through fascia, muscle and bladder-wall and out the opposite side of the incision, and not tied, but held in a forceps.

The bladder is now incised with a sharp knife sufficiently to admit a large pure gum 7/8 inch (Andrews) drainage tube. The tube should not project more than one inch into the bladder. The patient will feel more comfortable if the tube does not press against the floor of the bladder, thereby avoiding the tenesmus incident to constant pressure against the bladder-wall. The stay suture at the upper angle of the wound is now tied and another passed through the lower angle of the wound, including the tube, and tied. This keeps the patient dry in bed during the interim of bladder drainage. Put the patient in bed and connect the tube with a drainage bottle.

Second Stage.—From eight days to two weeks after supra-pubic drainage has been established, if conditions are found to be satisfactory, the prostate may be removed through the opening which has been kept patent by the large drainage tube. It may be necessary to enlarge the incision a trifle, which can be done under apothesine.

The abdominal wound and bladder-walls are retracted by a couple of long narrow-bladed retractors so that the prostate is brought into full view. An assistant standing at the patient's right inserts his right index finger into the rectum and presses upward on the prostate. At times the prostate may be pushed well into the abdominal wound. The gland is now well infiltrated with apothesine, and after waiting five minutes or so, the gland is removed.

This is accomplished by the surgeon standing on the left side of the patient, with the gloved left index finger in the rectum and the right hand ungloved. With a blunt scissors the mucosa over the gland is nicked while the gland is kept pushed well up by the left hand. The operating finger now follows the gland around its line of cleavage. Dissection is continued till all the gland is shelled out. The removal may be accelerated by an assistant's grasping the gland with a double-toothed volsella forceps and raising it up by gentle but firm pulling. A few bands attached may have to be cut; otherwise it is scarcely necessary to use a cutting instrument after the cystostomy. Hemorrhage should always be expected. One will then be prepared. Normal salt solution at 120° F. is usually all that is required to stop the oozing, although at times it may be necessary to suture or tampon. Tampons should be firmly held with a steady pressure in the space left by the removal of the gland.

A drainage tube not so large as was used in the former operation is anchored in the wound, care being exerted not to let it project more than an inch into the viscus. The muscle and fascia are closed with catgut around the drain. Silkworm gut is used for the skin. A small cigaret drain may be put in the lower angle of the wound. This, however, is rarely necessary if the bladder is firmly closed around the drainage tube. The patient is returned to bed and a right-angle glass tube is put in the bladder drain and the urine carried into a bottle.

Pituitrin (surgical) 1 c. c. is given hypodermatically every five hours for twenty-four hours after operation. Small doses of morphin are also given to allay pain. Continuous drip of 5 % sodium bicarbonate with 5 % glucose solution is given, starting immediately after operation and continuing for thirty-six hours, or as long as is indicated. The patient may take a goodly amount of liquids, fruit juices, etc., immediately after the operation. Thirty-six hours later he receives calomel, 1 gr., at 7 and 8 o'clock P. M., and in eight hours a Seidlitz powder, followed by a high flushing two hours later. The pa-

tient is allowed to get up in seven days. 30 *N. Michigan Boulevard.*

AUTHORS' ABSTRACTS

Surgery

Cervical Sympathectomy as a Means of Permanent Cure of Facial (Trigeminal) Neuralgia. V. Pleth, Pittsburg, Calif. American Journal of Surgery, Vol. 33, No. 5, May, 1919, p. 103.

An extensive experience has taught the author that plain sympathectomy (superior cervical ganglion with branches given off from it) will give complete relief from return of pain in true neuralgia quinti major though two or more months elapse before relief is noticeable.

If deep and superficial injections are at the same time practiced at the superficial and deep foramina of exit of rami of the trigeminus, then the relief is very prompt. Alcohol injections alone do not guarantee a permanent cure. Neuralgia of the superior ramus of the trigeminus is surgically inaccessible, but is always dominated by the combined use of sympathectomy and deep superficial injections of alcohol though sympathectomy alone will do it

The better plan would be to do the sympathectomy first and a few days later practice the alcohol injections. Several cases of causalgia have been operated upon in the French Army by operating upon the fibres of the sympathetic around arteries leading to the painful area. Cases of mal preferans have been cured by resecting the sheath of the femoral artery in cases of Raynaud's disease by operating upon the sheath of the brachial artery.

A Review of the Evolution of Thoracic Surgery Within the Past Fourteen Years. Willy Meyer, New York, N. Y. Medical Record, Vol. 95, No. 19, p. 761.

Willy Meyer gives a review of the evolution of thoracic surgery within the last fourteen years.

After having dwelt at length upon the physiologic and pathologic symptoms of acute pneumothorax and the necessity for employing a differential pressure method in order to avoid or overcome its occurrence, he has the various principal anatomical structures: chest wall, pleura, diaphragm, anterior mediastinum, heart, lungs and bronchi and posterior mediastinum particularly the esophagus, pass review.

Much progress has been made in the diagnosis as well as the treatment of diseases in all the chapters mentioned.

With reference to bronchiectasis emphasis was laid upon the fact that each case has to be considered individually with reference to indication for operation. The more conservative methods can cure earlier cases; the advanced ones need lobectomy.

With reference to cancer of the esophagus he is convinced that these cases will revert to and remain in the domain of operative surgery.

The knowledge of how to operate and how best to conduct the after-treatment is at our disposal today. What is needed now is to render an early diagnosis in order to insure more frequent fortunate results after resection of the esophagus in its thoracic portion, and in cancer of the cardia.

The Influence of Drugs and Chemical Agents Upon the Liver Necrosis of Chloroform Anesthesia. Paper II. N. C. Davis and G. H. Whipple, San Francisco, Calif. Archives of Internal Medicine, Vol. 23, No. 5, May 15, 1919, p. 636.

Sodium carbonate in hypertonic salt solution given intravenously during chloroform anesthesia has no protective action against the resultant liver injury.

Phosphate solutions, high in buffer content, have no protective action against chloroform injury.

Epinephrin subcutaneously or intramuscularly in the days preceding chloroform anesthesia exerts a distinct protective action against chloroform liver injury. The resistance requires time to develop, and is not demonstrable by a single dose of epinephrin a short time before chloroform administration.

Quinine sulphate given in the days preceding chloroform exerts a marked protective action against liver injury.

Hydrazin sulphate, although itself injurious to the liver, apparently does not intensify (perhaps lessens) the toxic action of chloroform.

It would appear that strychnin sulphate has very little deleterious action on an ordinary chloroform injury following starvation.

Toxic proteose solutions in large dosage may intensify the chloroform injury, but in small amount seems to have no effect.

Potassium cyanid given intravenously during chloroform anesthesia, although very toxic at the time, seems to exert little, if any, influence upon the delayed chloroform poisoning (liver injury).

The hypothesis that glycogen protects the liver cell against the injury of chloroform will not explain all the observed facts. Some experiments are in harmony with this hypothesis, but others are equally positive against it. This simple explanation of the resistance of liver cells to chloroform injury does not suffice, and undoubtedly other factors are concerned which must be searched out.

The hypothesis that chloroform injury and liver necrosis is to be explained by a lowering of the level of tissue oxidation (tissue asphyxia) received no support from the author's experiments.

The peculiar protective action of epinephrin and quinine sulphate in chloroform poisoning may have some practical clinical application.

Certainty in Sterilization. A. R. Warner, Cleveland, Ohio. The Modern Hospital, Vol. 12, No. 5, May, 1919, p. 367.

In the process of preparing sterile linen for operations, there are many possibilities of error. Several years ago the thought occurred to the writer that perhaps error in this process accounted for a certain number of those cases of infection following operation when the nature of

the case seemed to indicate that infection should have been prevented. Study was therefore given to the possible sources of error and their elimination.

The first process to be carried through without error is the wrapping of the linen to be sterilized. It is advisable that all wrappings be with two layers of cloth, each of which is apparently intact. The linen wrapped must be absolutely dry. Wet linen condenses so much steam that the packages become almost soaked throughout with water in the process of sterilization. This markedly delays the penetration of the heat and the usual vacuum drying after sterilization scarcely dries the surface.

Many times this sterilization is done by orderlies and other attendants not absolutely reliable. To obviate this difficulty ordinary recording steam time pressure gauges were put on the autoclaves at Lakeside and connected with the inner chamber. In this way a graphic record of the pressure in the autoclave for the full twenty-four hours is recorded. These gauges are locked to make tampering impossible and each day a responsible person changes the dial and notes that all the sterilizations of the day before were effective.

It is well known that a piece of ice carefully wrapped may be carried through a routine sterilization and come out a much smaller piece of ice, but not more sterile than it was when it went in. A large bundle of damp linen will resist penetration sufficiently to interfere with proper sterilization of the center of the bundle. This error can be largely eliminated by wrapping for sterilization only dry linen. It is possible, however, to interfere with effective sterilization of dry linen if the packages are of considerable size and the carrier packed too tight. This may be checked at any time by the use of commercial tablets made for this purpose, which melt at 120° C. and which may be wrapped in the bundles.

The linen comes from the sterilizer sterile, but it must be kept sterile until used. If the linen went into the sterilizer perfectly dry and sufficient time under vacuum is given, it will come out practically dry. But so often a small defect in the sterilizer prevents the securing of proper vacuum and the linen comes out too wet to be exposed or handled. To meet this at Lakeside a sheet metal drying oven was built next to the autoclave. A liberal supply of steam pipes in this gives it considerable drying capacity and linen may be transferred immediately to this oven if it comes from the sterilizer in any way damp.

The above mentioned precautions seem to provide fairly well for sure sterilization if the linen actually went through this process. It is possible, however, that a package of linen for sterilization may somehow get mislaid, either in the operating room or in the sterilizing room, and find its way to the operating table unsterilized. It was found that the commercial indelible inks which write red when fresh were entirely satisfactory or coloring matter could be added to the inks which are a pale gray when fresh. A small scrap of paper dated the date the package was prepared for sterilization is included in each package of linen. On the inside of the package this writing will keep bright red for several weeks at least if not sterilized. In the process of steam sterilization this ink changes to black and there is a limited amount of infiltration in the paper which readily distinguishes the ink blackened by steam sterilization from the same ink blackened by exposure to light or dry heat. It is possible, therefore, for the surgeon to know positively that each package of linen has been through the sterilizing process.

This date slip with the red silver ink is so inexpensive and simple that it is worthy of extensive use.

Dead Teeth. Josef Novitzky, D.D.S., San Francisco, Calif. American Journal of Surgery, Vol. 33, No. 2, February, 1919, p. 25.

Of late many systemic ills have been traced to focal areas of infection in dead teeth and the underlying bone of the jaws. Medical diagnosticians have commonly left everything regarding the teeth in the hands of dentists. And dentists, lacking a knowledge of pathology, have neglected the infections incident to all dead teeth.

Dentists have commonly devitalized teeth and treated devitalized teeth according to the theory that a devitalized tooth is not dead nor that a dead tooth can be retained permanently sterile in the jaw. No evidence has been offered in support of such theories.

A tooth receives nourishment only by way of the apical foramen. When its dental pulp is removed, a tooth becomes incapable of receiving nourishment or of rebuilding itself. It can receive no nourishment by means of or through the cementum surrounding the root, for normal cementum is structureless. Through it no blood vessels nor blood fluids can pass. The "continuous chain of plasm between pulp and pericemental structure" is a myth. A pulpless tooth is in every sense dead and like other dead matter is subject to infection and putrefaction.

No matter whether a dead tooth is treated or not, and no matter by what method it is treated, it will show evidence of infection six months after devitalization. This has been established as a rule by the careful pathological examinations of hundreds of dead teeth.

Dentists have been loath to accept this rule, but no one has yet cited a single tooth as an exception to it.

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EDITORIAL DEPARTMENT

THE ASHEVILLE MEETING

This issue of the JOURNAL (November) is being made ready for the press while the Thirteenth Annual Meeting of the Southern Medical Association is in session at Asheville, North Carolina. The publication of the proceedings of that wonderful meeting will begin in the next issue (December), which will be mailed about December 15.

FOOD IDIOSYNCRASIES

The old adage that "one man's meat is another man's poison" relates to food idiosyncrasies. Meat, particularly veal, oysters, fish and other proteins are ordinarily wholesome foods, yet some one of these may be a violent poison to the individual who has an idiosyncrasy for that particular article of diet. The writer recalls a medical society dinner at which the most delicious oysters were served. One of the physicians present — the only one affected—became violently ill a few hours afterwards, suffering from nausea, vomiting and an erythematous rash extending from the tips of his fingers to the elbows of both arms. The attack lasted for less than twenty-four hours. This physician had had similar symptoms several times before from eating what appeared to be perfectly fresh oysters.

Milk and eggs are two of the most important articles of diet for human beings, yet it occasionally happens that a person is found who becomes violently ill from taking one or the other. Symptoms appear similar to those of anaphylaxis, and to those which have been noted in rare cases following the use of therapeutic serums in persons who have been sensitized by previous doses. Undoubtedly the cause of this idiosyncrasy for milk, eggs and other foods containing protein is a sensitization to proteins which the individual acquires in some unknown way.

In some instances a food idiosyncrasy seems to be inherited, but in others it is acquired, and in some it is a temporary condition. Individuals may display an intolerance to certain articles of food at one time, and subsequently be able to eat the same things with impunity.

PROTEIN SENSITIZATION

The idiosyncrasy to meats, milk, eggs, etc., is called "protein sensitization" and also "food allergy." Harper reports a case of food allergy in which an infant suffered from repeated attacks of asthma following the ingestion of even a teaspoonful of cow's milk. He made the effort to desenitize the infant and injected two drops of sterilized cow's milk subcutaneously. In five minutes the baby was in convulsions. The skin was cold and clammy, and the infant appeared to be dead. He was revived by a hypodermic of atropin 1/200 grain. The experiment was not repeated.

Protein sensitization may be overcome by giving very small quantities of a food to which an individual has an idiosyncrasy. In case of allergy in infants, where milk is an essential food, desensitization is best obtained by giving very small quantities, beginning with one drop and in-

creasing the quantity daily as the child's toleration increases.

The symptoms from which individuals suffer who have idiosyncrasies for various articles of food vary with the kind of food and with the individual. Protein-containing foods of various kinds, particularly veal and eggs, when eaten by some individuals, will cause violent headache, nausea and vomiting, and usually constipation, though diarrhea is sometimes observed. A number of well-known clinicians believe that protein putrefaction in the intestines is the cause of many of the manifestations of hysteria and neurasthenia, which are relieved by placing the patient on a low protein diet. Bryant thinks that persons of the habitus enteropticus type, whom he calls "chronic intestinal invalids," are particularly susceptible to the toxic action of the products of putrefaction of proteins in the intestinal tract.

Oysters, crabs, mussels, clams and other shellfish cause nausea and vomiting in some individuals, with abdominal pains and constipation or diarrhea, and particularly a rash, either urticaria or erythema. Many persons go through life with an idiosyncrasy to shellfish. Others, by taking small quantities, gradually overcome their sensitization to the food for which they had the idiosyncrasy.

MILK ANAPHYLAXIS

Milk, which is an important article of food to most people, disagrees with many, and with some it causes violent symptoms of an anaphylaxis, i. e., dyspnea, prostration, etc. Other persons have an idiosyncrasy for milk, manifested by furred tongue, and slight or even violent headaches. In others apparently pure milk causes cramps and diarrhea.

With many persons strawberries and other acid berries and fruits cause mild toxic symptoms, such as pyrosis due to gastric hyperacidity, nausea, vomiting, diarrhea and urticaria, the latter being the most constant symptom of the idiosyncrasy.

Acid wines may cause urticaria and diarrhea in persons who are not accustomed to their use. A number of such cases were reported among American soldiers in France who attempted to take up the French custom of drinking light wines.

If one individual out of a group of people, all of whom eat the same food, shows indications of food poisoning, especially if he is not accustomed to taking that particular article of food, and develops toxic symptoms, he should be warned that he may have an idiosyncrasy for it, and that in future he should partake of only small quantities until he is sure that the idiosyncrasy is not permanent. Care should be taken, however, not to suggest to a patient that any ordinary article of diet is toxic to him unless there are very strong grounds for the assumption. It often happens that a person becomes ill from infected food, particularly milk, and that he receives the mistaken impression that he has a food idiosyncrasy.

It is undoubtedly true that many people think they have an idiosyncrasy for food when in reality they have not. The author has had many patients who said that they could not take certain articles of food, particularly milk and eggs. On being questioned they gave no history of symptoms due to protein sensitization and they were induced to take the food that they needed. They had a food prejudice and not a real idiosyncrasy.

It is well, in cases of supposed food idiosyncrasy, to begin with a small quantity of the food which is said to disagree in order to demonstrate to the patient that he can eat the things which have disagreed with him one or more times before. Whenever a patient has a history

of repeated asthmatic attacks, or other severe symptoms in which there is food sensitization after the ingestion of a certain food, it is best not to insist upon the patient taking any quantity of it until his tolerance for that particular food is determined.

FETAL NUTRITION

Studies of the theory of reproduction lead to endless investigation, but as each phase is developed conclusions are reached from which the clinician deduces working principles which may be applied to bedside findings.

The method of fetal nutrition is still a disputed question, some investigators holding to the vitalistic theory while others maintain the mechanistic hypothesis. Even though the manner of change of fetal and maternal metabolic products remains enveloped in uncertainty, the study of the character of the constituents concerned in fetal nutrition has been greatly developed.

The broad general principle that the ovum is nourished at the expense of the mother is not tenable, unless it be in the early stages during the period required for the adjustment between the uterine circulation and the blastocyst. This demand is negligible, as the time referred to is very short-lived. Indeed, on the other hand, experimental research, in animal and human nitrogenous metabolism, has conclusively proven that the maternal organism, at an early stage, not only promotes its own functions but provides ample nourishment for the fetus and permits of storage of food by the mother.

In summing up investigations it is worthy of note to remark upon the marked similarity in the nutritional products of mother and fetus and in the waste products of metabolism. In some instances the maternal blood stream prepares the nutrition for the fetus, while on the other hand the fetal tissues themselves synthetize nitrogenous products. As stated above, there is a close correlation, in fetal and maternal blood, in the occurrence of protein as food material and waste products, in the amino acid distribution, in the carbohydrate and fat index. Uunlike the maternal organism the final analysis clearly demonstrates that fetal nutrition depends chiefly upon the peculiar activity of its own organs, and inasmuch as this link in the chain is unsolved, because of a natural isolation, our deductions must remain in the realms of uncertainty. However, certain practical points have been established relative to the variety and origin of the materials found in its body. From this determination the conclusion is drawn that in pregnancy no specific diet is adaptable in so far as its influence upon the size of the fetus is concerned for if such is procured it is at the expense of maternal nutrition.

Even though much of this study is in its formative stage, sufficient light has been thrown upon the subject so as to warrant the hope that the mysteries of the toxemia of pregnancy and allied conditions may be clarified.

Slemmons, J. M.: "The Nutrition of the Fetus," American Journal of Obstetrics, September, 1919.

WHAT EVERY WOMAN SHOULD KNOW ABOUT CANCER

The medical profession should educate the laymen, women particularly, as to what they should know about cancer. In contributing to this knowledge, Dr. Francis Carter Wood, in an article appearing in a recent number of the *Woman's Home Companion*, calls attention to the fact that the presence of a "lump" in a woman's breast should be considered as a danger signal and sufficient cause to lead any person, especially women over forty years of

age, to consult a reputable physician. He urges upon them the importance of seeking the advice of a surgeon, who makes his conclusive diagnosis after the corroborative evidence of microscopic and laboratory findings, combined with his physical examination. It is true that nearly all women have a dread of cancer, but the average uninformed person does not associate the presence of a small lump with her conception of cancer.

Another important point brought out in this article is that cancer is not inherited, as is generally supposed by the laity; nor is it a blood disease; and that if cancers are operated upon early enough, the majority of cases can be cured. Even warts, or moles, exposed to constant irritation should be removed. Old scars from a burn, or chronic ulcers have been known to develop cancer. The public should be warned against the use of salves or ointments in this disease, and also caustics, which are not effective except in small cancers of the face.

EARLY SYMPTOMS OF CANCER

The internal cancers are much more difficult to diagnose, the subjective symptoms being often obscure. Hemorrhage is the symptom that ordinarily leads the average person to seek the advice of a physician. The warning symptoms of cancer of the stomach are "dyspepsia, bloating, vomiting of bile and blood," in a person over 30 years of age; those in cancer of the intestines are "constipation, distention of the abdomen, with colic, and hemorrhage;" while in uterine cancer there is frequent hemorrhage coming on particularly after the menopause. In cancer of the kidney we find blood in the urine.

In England, cancer has the highest death rate of any other disease among women over forty-five years of age. The proportion of deaths in the United States in women over forty is "1 in every 8," while among men it is "1 in every 14." Many of these deaths are unnecessary, and this proportion will be materially lowered through the individual efforts of physicians, co-operating with the work of the American Society for the Control of Cancer, the health boards and the insurance companies in educating the public regarding the things that they should know about cancer, and in the removal of pre-cancerous and incipient lesions.

VEGETABLE-BORNE INFECTIONS

Few plants normally contain poisons, but there are some which are poisonous and which may be mistaken for the edible varieties. Chestnut gives a list of about thirty poisonous plants, but some of these are not poisonous to man.

Certain vegetables, which are normally wholesome, like potatoes, may become poisonous under certain conditions, as in sprouting. It is probable that many of the cases of poisoning that have been reported from eating vegetables resulted from bacterial infection. This is true of the outbreaks of diarrheal diseases and typhoid fever that have followed the use of celery, lettuce, watercress and other uncooked vegetables.

Vegetables that are to be eaten raw become dangerous for consumption if grown in soil that is polluted either from the excreta that is washed out by rains from open privies or by the use of feces, either from cattle or from human beings, as fertilizers. Recent investigations indicate that the principal type of organism in food poisoning, the Bacillus enteritidis of Gartner, comes from the feces of cattle.

Food inspection, to be effective in the case of vegetables that are to be eaten raw, should begin at the farm where they are produced. Dairies in the country are inspected by the health authorities. Why

should not truck farms on which vegetables like celery, lettuce and berries, strawberries particularly and others that are eaten raw, are raised and which are sold on the markets, undergo the same thorough inspection? The danger of infection from vegetables is not so great as from milk, because the latter is a good culture medium for many pathogenic bacteria, but human "carriers" may infect vegetables and fruits. Persons who handle food of any kind should be examined to determine whether or not they are "carriers" of disease, just as is done with those who are engaged in dairying. If the city markets, and places where fruits and vegetables are sold, were required to be kept as sanitary as the dairies and milk depots, there would be fewer cases of food infections. It is the usual thing to see vegetables, fruit and berries displayed in markets and on the street, where they are exposed to infection from flies. dust and polluted water, and to handling by "carriers."

Decomposing vegetables are more apt to be infected than fresh ones for the reason that they have had a longer time to become contaminated, and if contaminated with pathogenic bacteria the latter have had a longer time to develop and elaborate their toxins. It is probable that decayed vegetables in themselves are not toxic to man, but the evidence of decay is a good index as to the opportunities for infection.

POTATO POISONING

Potato poisoning is perhaps of more frequent occurrence than is generally supposed. In the agricultural districts "new" potatoes and those that are sold and "sprouting" are thought to be frequent sources of food poisoning. The toxic principle in potato poisoning is said to be solanin. In the outbreak in Glasgow, Scotland, in November, 1917, which was studied by Wright, Harris and Cockburn, solanin was found to be present in the sprouting potatoes in four or five times the quantity that occur in potatoes normally. There were 61 cases with 1 death in this outbreak of potato poisoning. The symptoms in this, as in other outbreaks, were those of a gastro-enteritis, i. e., vomiting, diarrhea, colicky pains, headache, slight fever and prostration. Jaundice and partial paralysis occurred in some of the cases. While solanin is no doubt the cause of most cases of potato poisoning, potatoes that have been cooked for one meal and left over and served cold several days later, as in potato salad, may become infected and cause poisoning.

Tomatoes have also been under the suspicion of being poisonous. The writer recalls that some fifteen years ago a Chicago physician reported a number of cases of functional cardiac disorder which he called "lycopercicum cardopathia" caused by eating over-ripe tomatoes. It has not been more than fifty years since tomatoes were first used for eating purposes, there having been a popular superstition that they were poisonous. There can be no doubt that tomatoes are wholesome, but since they are eaten raw and exposed to the dust in markets, and usually handled by various persons before they are served, they may carry infection. While thorough washing of tomatoes will not sterilize them, it will no doubt reduce the number of bacteria, and in the production of food poisoning the dosage of micro-organisms has a bearing on the severity of the symptoms. Tomatoes should be peeled before using. The tough skin is difficult of digestion and also, when it is removed, the chances of infection from that source are reduced.

RECOGNITION OF SOUTHERN MEDICAL TALENT

Southern physicians have always been generous purchasers of medical books, but because of the fact that there have been no large medical book publishing houses in the South, they have been invited to contribute but rarely to the various systems of medicine and surgery that have been published. This has not been due to any intended discrimination against the physicians of the South. The medical publishers have resided in the Northern and Eastern cities and being more familiar with the physicians near them, they have invited the men whom they knew best to write their books.

The fact that the physicians of the South have not written many books or that their names do not appear as contributors to systems of medicine and surgery has not been due to the lack of medical talent in the South, because no section of the country has a larger proportion of great men in medicine. It must be frankly stated, however, that the talents of our medical men have not received the recognition which they have merited. It is, therefore, very gratifying to see the change coming when medical publishers will look to medical men from all sections of the country for authorship instead of confining their selections of authors to the physicians of a few of the largest medical centers.

In order to encourage the physicians of the South to write medical books it has been the policy of the SOUTHERN MEDICAL JOURNAL to make editorial review of those that have been prepared by men residing in the sixteen Southern states. It, therefore, seems proper to call attention to Tice's *Practice of Medicine* because a large proportion of its contributors reside in the territory of the Southern Medical Association. The publishers of this system of medicine have spared neither expense nor trouble to make it the most practical as well as the most comprehensive scientific treatise on the diagnosis and treatment of disease that has ever been published.

This system of medicine has been in the course of construction for three years, having been begun before the war, and it will be a wonderful work. It has an advantage that it has been built up around a preconceived plan of medical publishers and editors of large experience.

Recognizing the fact that much that is in medical books becomes past history in a very short time, the editors of Tice's *Practice* have arranged to keep it up to date. They also propose to give a service of great value to physicians by preparing a monthly review of all the literature on the various phases of the practice of medicine. This feature will be appreciated, particularly, by those who have not access to large medical libraries.

CONTRIBUTORS FROM THE SOUTH

Those who are responsible for Tice's *Practice of Medicine*, including publishers, editors and contributors, deserve success for their meritorious efforts. This system should appeal to the physicians of the South for many reasons, and particularly because the chapters on malaria, uncinariasis, amebiasis, and other tropical infections have been prepared by physicians who have had large experiences in dealing with those diseases.

The following is a list of the contributors residing within the territory of the Southern Medical Association, with titles of the chapters which they have prepared, or will prepare, for Tice's *Practice of Medicine:*

Malaria and Hookworm: Charles C. Bass, M.D., New Orleans, La.

Headache, Migraine, Epilepsy: E. Bates Block, M.D., Atlanta, Ga.

Stomatitis: John Staige Davis, M.A., M.D., Charlottesville, Va.

Rocky Mountain Spotted Fever: Lunsford D. Fricks, A.B., M.D., Memphis, Tenn.

Pellagra: Joseph Goldberger, M.D., Washington, D. C.

The Application of Army Sanitation to General Practice: Major-General Wm. C. Gorgas, Surgeon-General U. S. Army, Retired, Washington, D. C.

Food Poisoning, Flukes and Tapeworms: Seale Harris, M.D., Birmingham, Ala.

Foreword: Major-General M. W. Ireland, Surgeon-General, U. S. Army, Washington, D. C.

Measles, German Measles and Mumps: Wm. Albert Jenkins, M.A., M.D., F.A.C.P., Louisville, Kentucky.

Cerebrospinal Fever: James P. Leake, A.B., M.D., Washington, D. C.

Leprosy: George W. McCoy, M.D., Washington, D. C.

Diseases of the Kidney: J. B. McElroy, B.S., M.D., Memphis, Tenn.

Ricketts and Infantile Scurvy: Frank C. Neff, M.D., Kansas City, Mo.

Eighteenth Century Medicine: C. W. G. Rohrer, B.Sc., M.D., M.A., Ph.D., Baltimore, Md.

Bacillary Dysentery: F. F. Russell, M D., Sc.D., Washington, D. C.

Morbid Conditions Due to Changes in Barometric Pressure: J. W. Schereschewsky, M.D., Washington, D. C.

Entamebic Dysentery and Balantidial Dysentery, the Flagellate Infections and Coccidiosis: Sidney K. Simon, M.D., New Orleans, La.

Dengue and Malta Fever: Edward B. Stitt, A.B., M.D., LL.D., Washington, D. C.

Cranial Nerves and Their Diseases: Beverley R. Tucker, M.D., Richmond, Va.

Scurvy and Beri-Beri: Edward B. Vedder, Ph.B., M.A., F.A.C.S., Washington, D. C.

Trypanosoniasis, Leishmaniasis, Relapsing Fever, Cholera Asiatica, Diseases Caused by Nematodes, Parasitic Arthropods and Rabies: Eugene R. Whitmore, B.S., M.D., Washington, D. C.

Southern Medical News

ALABAMA

Dr. Frank W. McCorkle, Uniontown, has been appointed Assistant Health Officer of Huntsville and Madison County.

Dr. H B. Wilkinson has resigned as Health Officer of Montgomery and Montgomery County and will resume his practice in Montgomery.

Dr. P. O. Chaudron has been discharged from the Army and resumed practice at Dothan.

Dr. L. J. Johns announces his return from active duty with the American Expeditionary Forces and the opening of his offices in the Jefferson County Bank Building, Birmingham.

Deaths

Dr. J. D. Bancroft, Birmingham, aged 47, died October 16.

Dr. A. J. Peterson, Goodwater, aged 60, died at his home September 21.

Dr. C. C. Brown, Coker, aged 40, died at his home early in September.

ARKANSAS

The Council of the Arkansas Medical Society met in Little Rock November 7 and elected Dr. William R. Bathurst Secretary of the State Medical Society to fill the vacancy caused by the death of Dr. C. P. Meriwether. Dr. R. L. Saxon, Little Rock, was elected Treasurer, succeeding Dr. Bathurst, who resigned to accept the Secretaryship.

The physicians of Blytheville have organized a society for Blytheville and Mississippi County. The officers elected were: J. A. Saliba, President; F. D. Smith, Vice-President; Isaac R. Johnson, Secretary-Treasurer, all of Blytheville.

Dr. W. T. Rowland, Arkadelphia, has been elected City Health Officer by the Council.

Dr. C. W. Garrison, State Health Officer, has announced that plans for furnishing 25 public health nurses for Arkansas for distribution to various Red Cross Chapters have been completed.

Dr. C. H. Tillotson has recently been discharged from the Army and is associated with Dr. T. E. Holland, Hot Springs.

Dr. E. M. McKenzie has announced his return from service in France and he is again associated with Dr. W. O. Forbes, Hot Springs.

Deaths

Dr. C. P. Meriwether, Little Rock, aged 45, died at his home November 2 from tuberculosis.

Dr. J. F. Simmons, Pine Bluff, died at his home October 6 from heart disease.

Dr. M. B. Corrigan, Monticello, aged 67, died October 24 from nephritis.

Dr. A. S. Garnett, Hot Springs, aged 86, died at his home October 30.

DISTRICT OF COLUMBIA

The Medical Society of the District of Columbia is making a drive to raise $35,000, this being the balance needed to complete the society's building fund of $75,000.

Dr. R. L. Silvester, Washington, on October 11 married Miss Susette Parran, of Port Republic, Maryland.

Deaths

Dr. J. K. P. Gleeson, Washington, aged 75, died at the Takoma Park Sanitarium October 23.

Dr. S. O. Richey, Washington, aged 70, died at his home October 8 from cerebral hemorrhage.

FLORIDA

Dr. L. A. Greene, Greenville, has been appointed chief of the Bureau of Venereal Diseases of the State Board of Health.

At its meeting in Jacksonville, November 4, the Duval County Medical Society adopted a resolution setting forth that the opposition to the establishment of a leper colony by the United States Public Health Service on an island off the coast of Florida is unfortunate. The arguments against it should be met by the medical profession with an educational propaganda for the purpose of showing that a leper colony will be of no disadvantage

to the State, but that it will be of advantage in taking care of the lepers of Florida, who are now at large.

Under the direction of the Child Welfare Department of the State Board of Health the examination of 200,000 school children of Florida started October 1.

GEORGIA

Miss Louise Hazelhurst, Macon, was elected President of the Georgia State Association of Graduate Nurses at the convention in Atlanta early in October.

Dr. A. B. Reddick, Sylvania, married Miss Lillian Causey, of Savannah, on September 21.

Dr. F. W. McRae, Jr., Atlanta, married Miss Eleanor Deming Stout, of Chicago, November 1.

Dr. G. Y. Massenburg, Macon, married Miss Dorothy Shedd, of Columbus, Ohio, September 10.

A new fifty-bed hospital at Eastman has just been completed. It is known as Eastman Hospital.

Deaths

Dr. R. H. Jenkins, Hogansville, aged 68, died October 14.

Dr. W. W. Peek, Louvale, aged 67, died at his home September 17 from heart disease.

Dr. E. H. Robertson, Dallas, aged 49, died at his home October 11 from accidental poisoning.

Dr. A. T. Parks, Gratis, aged 86, died at his home September 15.

KENTUCKY

The forty-ninth semi-annual meeting of the Southwestern Kentucky Medical Association held its meeting at Dawson Springs October 28.

Dr. J. E. Edwards, formerly of Buckeye, has moved to Lancaster.

Dr. T. G. Connell, LaGrange, has been appointed Third Assistant Physician at the Lakeland State Hospital.

Dr. D. C. Donan, Morganfield, was recently discharged from the Army and resumed his practice.

Dr. Geo. J. Hermann, Newport, married Miss Catherine Nordwich, of Alexandria, on October 25.

Dr. Howard Lyon, Winchester, married Miss Dixie Belle Helm, of Morgantown, on October 2.

Deaths

Dr. T. F. Miller, Glasgow, aged 34, died at the home of his father in Tompkinsville October 12.

Dr. P. N. Blackerby, Falmouth, aged 74, died at his home July 12 from nephitis.

Dr. Jos. A. Richmond, Bellevue, aged 37, died at his home October 21.

LOUISIANA

Dr. Isadore Dyer, dean of the School of Medicine, Tulane University, New Orleans, was recently appointed Colonel on the staff of the Surgeon-General.

On October 13 Dr. B. A. Ledbetter, New Orleans, fell into an open elevator shaft at the Charity Hospital and sustained severe injuries.

Dr. J. G. Dempsey, New Orleans, has been placed in charge of the recently created Anti-Tuberculosis Bureau of the City Board of Health and will devote his entire time to this work. The new bureau will be an extension of the work in the department for the prevention of communicable diseases, according to announcement made recently by Dr. W. H. Robin, President of the City Board of Health.

A fifty-room addition to the Highland Sanitarium, Shreveport, to cost approximately $135,000, is being planned.

A public health service drive to save 250,000 lives in the United States in 1920 was launched in New Orleans October 29 at a meeting of the American Health Convention by Dr. L. L. Lumsden, of the Public Health Service. He urged the convention to wage the drive in the same manner that the Liberty Loan, Food Conservation and Red Cross drives were pushed to success during the war.

Dr. M. H. Foster announces his discharge from the Army and his removal from McAlester, Oklahoma, to Alexandria.

MARYLAND

Dr. Fred Hempel, Baltimore, has been appointed Assistant Commissioner of Health, to succeed Dr. W. T. Howard, who will go to the Johns Hopkins School of Hygiene as an instructor.

A corps of 100 physicians have organized for influenza emergency. This was at the request of the United States Public Health Service. These physicians will be paid by the Federal Government.

In Baltimore a campaign for healthier school children has begun under the direction of Dr. E. V. McCollum, of the Johns Hopkins School of Hygiene and Public Health.

After several months' foreign service in the Army Dr. W. J. Coleman has returned to Baltimore.

Work will be begun in the spring on a woman's clinic at the Johns Hospkins Hospital which will offer facilities for the study and observation in obstetrics and gynecology, as announced by Dr. W. H. Smith, Baltimore.

Deaths

Dr. Clinton Brotemarkle, Salisbury, aged 59, died in a sanitarium in Philadelphia the latter part of October.

Dr. R. T. Wilson, Baltimore, aged 59, died at his home October 6 from heart disease.

MISSISSIPPI

Dr. J. B. Anderson has resigned his position as Health Officer of Yazoo City, and Dr. W. E. Noblin has been appointed Health Officer to succeed him.

The Mississippi State Public Health Association held its meeting in Jackson October 22-23, and the following officers were elected: President, Dr. W. H. Frizell, Brookhaven; Vice-Presidents, Drs. T. E. Hewitt, Amite County; Paul G. Pope, Columbia, and Thomas L. Underwood, Monroe County; Secretary-Treasurer and Executive Officer, Dr. W. S. Leathers, University. The 1920 meeting will be held in Jackson.

The semi-annual meeting of the Homochitto Valley Medical Association, whose membership is composed of the counties of Adams, Amite, Jefferson and Wilkinson, was held in Natchez October 9. The following officers were elected: President,

(Continued on page 34)

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(Continued from page 34)

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The dedicating exercises of the University of Oklahoma were held in Oklahoma City November 13.

Members of the Tulsa County Medical Society have passed a resolution to aid in the movement of the Sisters of the Sorrowful Mother to build and equip a new St. Johns Hospital.

Death

Dr. Charles L. Swimley, Roll, aged 50, died suddenly from heart disease in Strong City October 14.

(Continued on page 38)

Laboratories of Drs. Bunce and Landham

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Director Pathological Dept.

Jackson W. Landham, M.D.
Director X-Ray Dept.

The laboratory of clinical pathology is well equipped for making pathological, bacteriological, serological and chemical examinations for physicians and surgeons. All specimens reported upon the same day received where practicable.

The X-Ray laboratory is equipped with a modern 10 Kilowatt Snook Transformer and a Single Unit Victor Table adaptable to both vertical and horizontal fluoroscopy and radiography. Both diagnostic and treatment work is done in this department personally by Dr. Landham, who was formerly associated with Dr. W. F. Manges, in Roentgenology, at the Jefferson Medical College and Hospital.

Fee lists and containers for pathological specimens and information in reference to X-Ray work furnished upon request.

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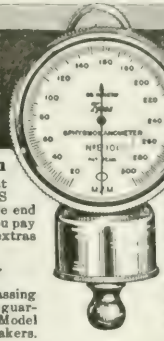

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Address .....

(Continued from page 36)

SOUTH CAROLINA

At the meeting of the Lexington County Medical Society, held in Lexington October 6, Dr. J. H. Mathias, Lexington, was elected President; Dr. Daniel R. Kneece, Pelion, Vice-President, and Dr. James J. Wingard, Lexington, was re-elected Secretary.

Deaths

Dr. George D. Hersey, Charleston, aged 72, died at Somerville, North Carolina, September 28 from cerebral hemorrhage.

Dr. J. P. Duckett, Anderson, aged 68, died in the Anderson County Hospital October 10.

TENNESSEE

Prominent Jews of Tennessee, Arkansas and Mississippi held a mass meeting on November 2 in Memphis and discussed plans for raising $350,000 for the erection in Memphis of a Jewish hospital, non-sectarian in its scope and purposes. There will be 100 beds, one-fourth of which will be for charity patients.

Dr. Olin West, Secretary State Board of Health, Nashville, states that a great number of scarlet fever cases have been reported to him from throughout the State. A number of cases of diphtheria are also reported.

Dr. Wyatt Martin has been appointed Mouth [illegible] County on the State Board of [illegible] pupils in the schools in-

Supplemental Food for Infants

Borden's Eagle Brand contains all the valuable proteins, carbohydrates, mineral salts and fats of fluid milk.

It is rich in fat-soluble A and water-soluble B, which McCollum and other investigators have demonstrated are indispensable to the normal growth and well being of the young.

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(Continued from page 38)

structed in the proper care of the mouth and teeth.

The white and negro male wards of the Memphis Tuberculosis Sanatorium were burned October 17, and other portions of the building were damaged. The inmates were removed without casualty.

Knoxville people have been asked to give $1,000 for Tennessee Bed No. 63 in the American Memorial Hospital, Rheims, France; Memphis and Nashville have been asked to contribute $1,500 each, and Chattanooga $1,000. Smaller towns are also asked to make donations.

Deaths

Dr. John M. Gass, Knoxville, aged 83, died October 16.

Dr. S. B. Wood, Roan Mountain, aged 58, died at his home September 17 from nephritis.

Dr. M. C. McGannon, Nashville, aged 62, died at his home October 9 from heart disease.

Dr. J. D. Sasser, Middleton, aged 72, died in the Baptist Hospital, Memphis, August 17 from nephritis.

Dr. R. B. Womack, Prendergast, aged 75, was shot and killed near Pattie September 26.

Dr. West Alexander, Woodland Mills, aged 80, died at his home October 29 after a short illness.

TEXAS

Dr. W. L. Crosthwait and Dr. Doyle L. Eastland, Waco, announce their association under the firm name of Drs. Crosthwait & Eastland.

(Continued on page 42)

DIET IN THE WINTER DISEASES

Most of the common affections at this time of the year—influenza, pneumonia, diphtheria, tonsilitis and other contagions—are characterized by fever, marked weakness and disinclination to take food. (To maintain nutrition helps withstand the disease.)

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The Whole Wheat Milk Modifier

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Dennos surchanges the milk with rich assimilable carbohydrates essential to a fever diet. It reduces the curd to fine, flocculent particles, non-irritating and readily assimilable. May be made a valuable aid in re-establishing normal nutrition when vomiting, nausea or diarrhea is present.

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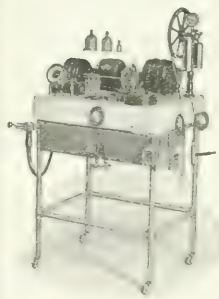

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(Continued from page 40)

Plans for a 300-bed hospital are now being worked out by Oak Cliff (Dallas) doctors, who are receiving the support of various improvement leagues and business men, as well as the citizens in general.

The second tournament of the Modern Health Crusade in Texas will be held between November 1 and February 28, according to an announcement by the State Crusade Director, Miss Louise Hunter, Director of Children's Work of the Texas Public Health Association. It is expected that 500,000 children of the State will take up the fight for cleanliness and good health.

The number of students enrolled in the three schools of the State Medical College, Galveston, has reached the total of 360. This is the largest number of students in the history of the college.

The semi-annual meeting of the Texas Surgical Society was held in Temple October 13-14. San Antonio was chosen as the next meeting place. Officers elected were Dr. Frank Paschal, San Antonio, President, and Dr. Frank L. Barnes, Houston, re-elected Secretary.

The State Board of Health has announced the appointment of Dr. Ira C. Garst on the staff of the Bureau of Rural Sanitation. Dr. Garst has been doing sanitary work in this country and in France as a member of the Army Medical Corps, and will be engaged in rural sanitary work in the State.

Dr. R. L. Howell, representing the State Board of Health, has completed an indexical health survey of Nacogdoches, and will soon do a similar work in the Cameron Independent School District, Milam County.

The forty-sixth annual meeting of the South Texas District Medical Association was held in Galveston October 9-10. Following officers were elected: Dr. W. B. Thorning, Houston, President; Dr. W. F. Thompson, Beaumont, Vice-President; Dr. J. E. Clarke, Houston, Secretary. Beaumont was chosen as the next meeting place.

Plans for a greater Baylor Medical College and an enlargement of the Baptist Sanitarium that call for the construction of thirteen new buildings, and a discussion of the campaign to raise the necessary money in Dallas, were brought before fifty doctors, dentists and members of Baylor College Faculty recently.

In response to the call made by State Health Officer C. W. Goddard for volunteer physicians for service in the event of an epidemic of influenza, offers have come from over 250 physicians.

Dr. Hugh J. Davis, Capt., M. C. U. S. Army, Austin, married Miss Grace Reynolds Douglas at Wilkes Barre, Pa., October 18.

Dr. Ross R. May, Whitewright, married Miss Pauline Lenox, Pendleton, Ark.

Deaths

Dr. G. L. Robertson, Leander, aged 53, died in the City Hospital, Austin, September 22.

Dr. W. S. Thomas, Woden, aged 69, died in a hospital in Nacogdoches October 2.

Dr. W. W. Sanders, DeKalb, aged 80, dropped dead in his bank in DeKalb October 2.

Dr. A. J. Beyer, Carmine, aged 37, died in a hospital in Austin October 7.

Dr. M. H. Moore, Wichita Falls, died at his home October 21.

(Continued on page 44)

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(Continued from page 42)

Dr. J. W. Moore, Agnes, aged 66, died May 12 from acute nephritis.

Dr. R. P. Ray, Culleoka, aged 65, died March 15 from paralysis.

Dr. C. L. Gregory, Greenville, aged 54, died August 11.

VIRGINIA

The fiftieth annual meeting of the Medical Society of Virginia was held in Richmond October 28-31. Officers elected were: Dr. Paulus A. Irving, Farmville, President; Drs. M. B. Payne, Staunton, Geo. C. Kleipstein, Alexandria, and Geo. J. Williams, Newport News, Vice-Presidents; Dr. E. L. Kendig, Chairman of Executive Committee. The selection of an all-time man who will act as Secretary-Treasurer, Business Manager and Editor of the monthly journal was left to the Executive Committee. The Association increased its membership dues from $2 to $4 a year. Next meeting to be held in Petersburg.

Dr. Beverley R. Tucker and Dr. R. Finley Gayle announce their association under the firm name of Drs. Tucker & Gayle, with offices in the Tucker Sanitarium, Richmond. Practice limited to neurology and endocrinology.

The Danville physicians have raised their fees to $5 day visits and $6 night visits.

Dr. L. O. Crumpler, Schoolfield, married Miss May Pace Talbott, of Danville, October 15.

Dr. R. L. Ozlin, Dundas, married Miss Bertha M. Kelley at New York City October 15.

(Continued on page 46)

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At the present time our research work is separated into sixteen sections. Over each section is a man of specialized training, and he is frequently of national and even international reputation. Each investigator has one or more technicians and other assistants, and altogether there is a research staff of about seventy.

The work is exceedingly varied in character. It covers the fields of pharmaceutical chemistry, biological chemistry, nutritional chemistry, bacteriology, pathology, physiology, cytology, parasitology, pharmacology, and the like. The task ramifies from year to year. It becomes more and more complex. And the future will doubtless witness a far greater development than the past has shown.

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